June 25th, 2018

Melanie A. Bachman Executive
Director Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**371 Terryville Avenue, Bristol, CT 06010**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of six (6) wireless telecommunication antennas at an antenna center line height of 168-feet on an existing 170-foot monopole, owned by Crown Castle at 3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065. AT&T now intends to add two (2) 8' CCI TPA-65R-LCUUUU-H8 Panel Antennas and one (1) 6' Kathrein 800-10798 Panel Antenna, each to be installed in position [4] each sector, for a total of three (3) new antennas to be added. In addition, AT&T intends to add (1) RRUS-E2 and two (2) RRUs-32, all at position [4] in each sector, for a total of twelve (12) new RRUs to be added. AT&T is also proposing to add (1) Raycap Squid, as well as one (1) fiber line and (2) DC Power Cables to their equipment configuration. Lastly, AT&T will be removing three (3) empty pipe masts currently installed in position [4], all sectors. All of the changes will take place on the existing antenna mount.

Per the attached Decision and Order, the construction of the aforementioned monopole was approved by the Connecticut Siting Council on October 14th, 2003. Please see the attached Decision and Order for conditions.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5l0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Monica Holloway - Zoning Enforcement Officer, City of Bristol, CT, 111 N. Main St. 2nd Floor, Bristol, CT 06010 and Ellen Zoppo-Sassu - Mayor, City of Bristol, CT, 111 N. Main St. 3rd Floor, Bristol, CT 06010. A copy of this letter is being sent to the property owner, Bristol Hospital Inc. Brewster Rd. Bristol, CT, 06010 and to the tower company, Crown Castle at 3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-CING-017-105-107-129-130-130-134-**070627 – New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunication facilities located at 371 Terryville Avenue, Bristol; 38 Hatchetts Hill Road, Old Lyme; 800 Ogg Meadow Road, Orange; 400 Main Street, Somers; 1432 Old Waterbury Road, Southbury; Russian Village Road, Southbury; and 33 South Road, Stafford, Connecticut.
- **EM-AT&T-017-130219** – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 371 Terryville Avenue, Bristol, Connecticut.
- **EM-CING-017-130703** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 371 Terryville Avenue, Bristol, Connecticut.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 168-foot level of the 170-foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b) (2).

Sincerely,

Romina Kirchmaier

CC w/enclosures:
Monica Holloway – Zoning Enforcement Officer, City of Bristol, CT
Ellen Zoppo-Sassu – Mayor, City of Bristol, CT
Bristol Hospital Inc. – Land Owner
Crown Castle – Tower Company

Connecticut Siting Council
Decisions

DOCKET NO. 250 - AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at 371 Terryville Avenue or 522 Terryville Avenue, Bristol, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	October 14, 2003

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a wireless telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes **§** 16-50k, be issued to AT&T Wireless PCS, LLC d/b/a AT&T Wireless (AT&T) for the construction, maintenance and operation of a wireless telecommunications facility at 371 Terryville Avenue (Site A), Bristol, Connecticut. The Council denies certification of Site B located at 522 Terryville Avenue, Bristol, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Sprint and other entities, both public and private, but such tower shall not exceed a height of 170 feet above ground level.

2. The facility shall be relocated down gradient from the originally proposed Site A location, approximately 20 to 30 feet to the east onto a flat area.

3. The access road shall be relocated to use the existing driveway and parking lot on the property.

4. The Certificate Holder shall prepare a D&M Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:

    a. a final site plan(s) of site development to include specifications for the tower, tower location, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and

    b. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power densities of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. The Certificate Holder shall provide space on the tower

for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.

7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antenna becomes obsolete and ceases to function.

9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, and The Bristol Press.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
AT&T Wireless PCS, LLC d/b/a AT&T Wireless	Lucia Chiocchio, Esq. Cuddy & Feder LLP 90 Maple Avenue White Plains, NY 10601
Intervenor	**Its Representative**
Sprint Spectrum, L.P. d/b/a Sprint PCS	Thomas J. Regan, Esquire Brown Rudnick Berlack Israels LLP CityPlace I, 38th Floor 185 Asylum Street Hartford, CT 06103-3402

Content Last Modified on 10/23/2003 7:56:24 AM

SITESAFE
RF COMPLIANCE EXPERTS

8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

Smartlink on behalf of AT&T Mobility LLC Site FA – 10070954 Site ID – CT5833 (MRCTB019672-MRCTB022471) USID – 27074 Site Name – Bristol Center

371 Terryville Avenue
Bristol, CT 06010

Latitude: N41-40-51.21
Longitude: W72-57-56.52
Structure Type: Monopole

Report generated date: May 21, 2018
Report by: Zyotty Thamsil
Customer Contact: Romina Kirchmaier

AT&T Mobility LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

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1 General Site Summary

1.1 Report Summary

AT&T Mobility LLC	Summary
Access to Antennas Locked?	No
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
FCC & AT&T Compliant?	Will Be Compliant
Optional AT&T Mitigation Items?	No

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CTV5833_2018-LTE-Next-Carrier_LTE-5C_dr701e_2051A0AD0S_10070954_27074_04-20-2017_As-Built-In-Progress_v3.00

CD's: 10070954_AE201_180416_CTL05833_Rev2_S&S 4C-5C

RF Powers Used: NEW-ENGLAND_CONNECTICUT_CTV5833_2018-LTE-Next-Carrier_LTE-5C_dr701e_2051A0AD0S_10070954_27074_04-20-2017_As-Built-In-Progress_v3.00

1.2 Signage Summary

AT&T Signage Locations									
	Information 1	Information 2	Notice	Notice 2	Caution	Caution 2	Warning	Warning 2	Barriers
Access Point(s)	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐
Alpha	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐
Beta	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐
Gamma	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐[#]	☐

1.3 Fall Arrest Anchor Point Summary

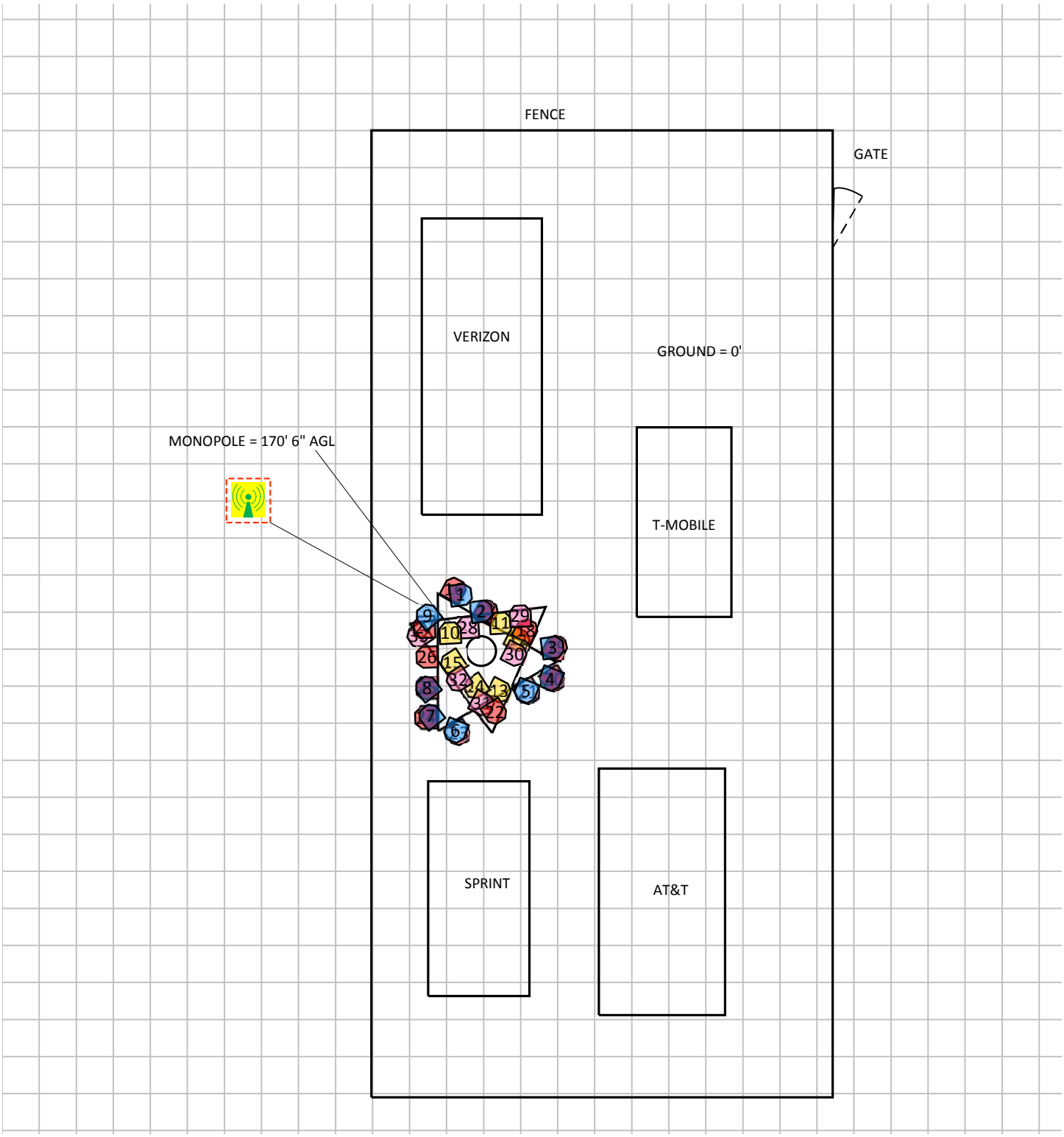
Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	N/A	N

2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- Site Scale Map – AT&T Mobility, LLC Antennas
- RF Exposure Diagram
- RF Exposure Diagram – Elevation View
- AT&T Mobility, LLC Contribution

Site Scale Map For: Bristol Center



(Feet)

0 7.6 15.2

www.sitesafe.com
Site Name:Bristol Center
5/21/2018 3:28:38 PM

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

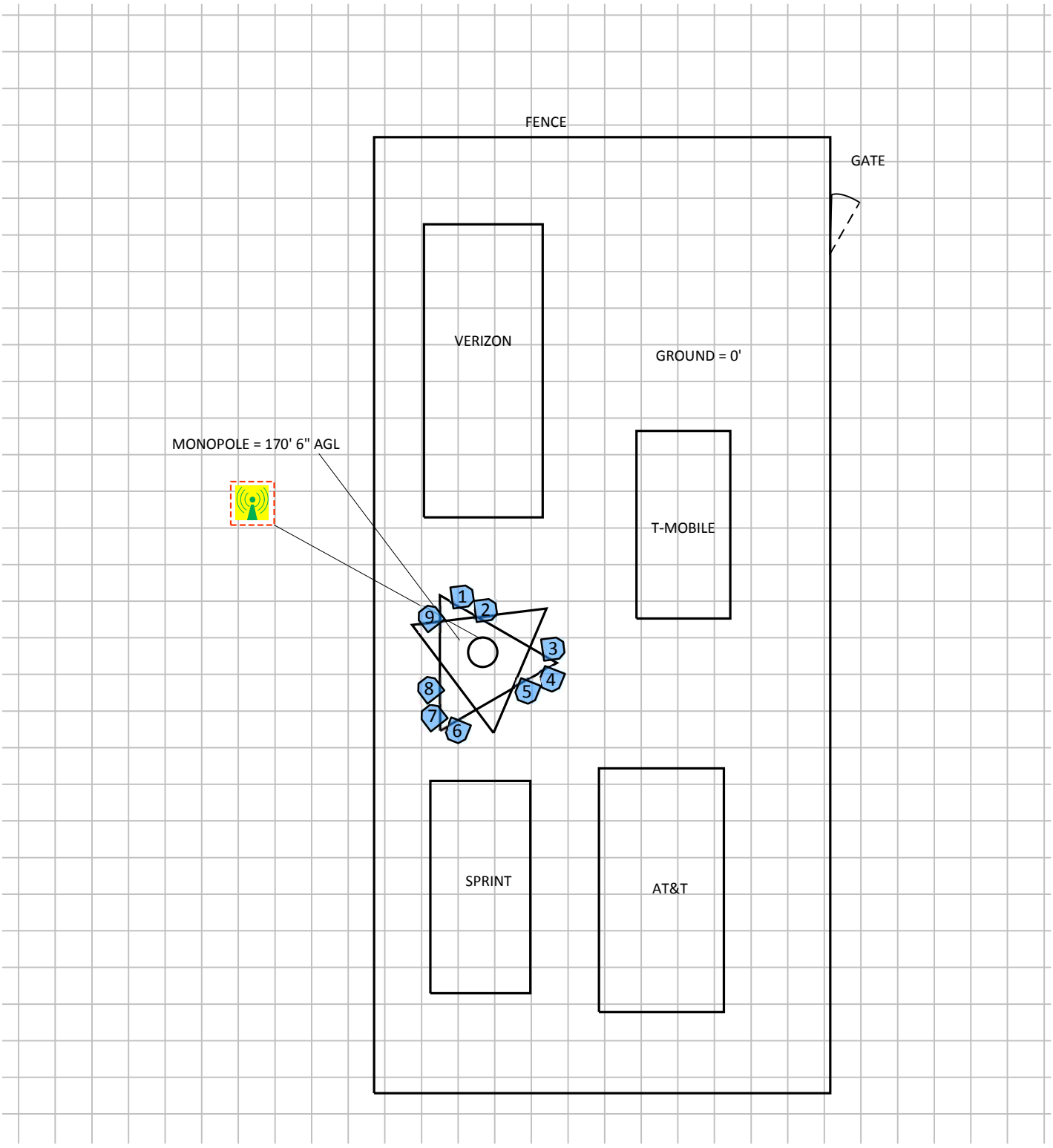
Sign Legend

Caution 1 | Caution 2 | Notice 2 | Notice 1 | Warning | Warning 2 | Info 1 | RF Safety Plan | Info 2

Barrier

Proposed Barriers/ Signs

Site Scale Map For: Bristol Center
AT&T Mobility, LLC Antennas



(Feet)

0 7.8 15.5

www.sitesafe.com
Site Name:Bristol Center
5/21/2018 3:29:19 PM

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Sign Legend

Caution 1 | Caution 2 | Notice 2 | Notice 1 | Warning | Warning 2 | Info 1 | RF Safety Plan | Info 2

Barrier

Proposed Barriers/ Signs

3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z (AGL)
1	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	85	87.6	4.5	11.35	1	0	250	91.6'	122.5'	167.7'
1	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	85	87.6	4.5	11.35	0	1	1000	91.6'	122.5'	167.7'
2	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	737	85	71	8	13.733	0	1	1475.7	93.7'	120.9'	166'
3	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2300	85	65	8	14.36	0	1	1285.3	100.9'	117.2'	164'
3	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	737	85	61.9	8	13.56	0	1	1475.7	100.9'	117.2'	164'
3	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	85	68.2	8	13.86	0	2	3664.4	100.9'	117.2'	164'
5	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	325	87.6	4.5	11.35	2	0	500.1	87.8'	121'	167.7'
5	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	325	87.6	4.5	11.35	0	1	1000	87.8'	121'	167.7'
5	AT&T MOBILITY LLC	KMW AM-X-CD-17-65-00T	Panel	737	205	68	8	14.66	0	1	1475.7	98.2'	112.8'	164'
6	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	737	205	61.9	8	13.56	0	1	1475.7	91.1'	108.7'	164'
6	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	205	68.2	8	13.86	0	2	3664.4	91.1'	108.7'	164'
6	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2300	205	65	8	14.36	0	1	1285.3	91.1'	108.7'	164'
7	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	325	87.6	4.5	11.35	1	0	250	88.5'	110.2'	167.7'
7	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	325	87.6	4.5	11.35	0	1	1000	88.5'	110.2'	167.7'
8	AT&T MOBILITY LLC	KMW AM-X-CD-16-65-00T	Panel	737	325	65	6	13.36	0	1	1475.7	88.2'	113.1'	167'
9	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10798	Panel	737	325	66	6.5	12.59	0	1	1475.7	88.3'	120.4'	164.7'
9	AT&T MOBILITY LLC	Kathrein-Scala 800-10798	Panel	1900	325	63	6.5	13.7	0	2	3664.4	88.3'	120.4'	164.7'
9	AT&T MOBILITY LLC	Kathrein-Scala 800-10798	Panel	2300	325	64	6.5	13.22	0	1	1285.3	88.3'	120.4'	164.7'
10	SPRINT	Generic	Panel	862	0	65	6.3	13.43	-	-	881.2	90.5'	118.7'	156.9'
10	SPRINT	Generic	Panel	1900	0	65	6.3	16.26	-	-	2536	90.5'	118.7'	156.9'
11	SPRINT	Generic	Panel	2500	0	65	4.1	15.01	-	-	1600	95.6'	119.7'	158'
12	SPRINT	Generic	Panel	862	120	65	6.3	13.43	-	-	881.2	97.3'	118'	156.9'

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z (AGL)
12	SPRINT	Generic	Panel	1900	120	65	6.3	16.26	-	-	2536	97.3'	118'	156.9'
13	SPRINT	Generic	Panel	2500	120	65	4.1	15.01	-	-	1600	95.5'	112.8'	158'
14	SPRINT	Generic	Panel	1900	240	65	6.3	16.26	-	-	2536	93'	113.2'	156.9'
14	SPRINT	Generic	Panel	862	240	65	6.3	13.43	-	-	881.2	93'	113.2'	156.9'
15	SPRINT	Generic	Panel	2500	240	65	4.1	15.01	-	-	1600	90.8'	115.6'	158'
16	VERIZON WIRELESS	Generic	Panel	850	30	65	6.3	13.43	-	-	1762.3	90.9'	123.1'	141.9'
17	VERIZON WIRELESS	Generic	Panel	1900	30	65	6.3	16.26	-	-	2536	94.2'	120.8'	141.9'
18	VERIZON WIRELESS	Generic	Panel	2100	30	65	6.3	15.53	-	-	2143.6	98.2'	118.9'	141.9'
19	VERIZON WIRELESS	Generic	Panel	751	30	65	6.3	12.56	-	-	1081.8	101.2'	117.2'	141.9'
20	VERIZON WIRELESS	Generic	Panel	850	150	65	6.3	13.43	-	-	1762.3	100.9'	113.9'	141.9'
21	VERIZON WIRELESS	Generic	Panel	1900	150	65	6.3	16.26	-	-	2536	98.3'	112.6'	141.9'
22	VERIZON WIRELESS	Generic	Panel	2100	150	65	6.3	15.53	-	-	2143.6	95'	110.6'	141.9'
23	VERIZON WIRELESS	Generic	Panel	751	150	65	6.3	12.56	-	-	1081.8	91.3'	108.5'	141.9'
24	VERIZON WIRELESS	Generic	Panel	850	270	65	6.3	13.43	-	-	1762.3	88'	110.1'	141.9'
25	VERIZON WIRELESS	Generic	Panel	1900	270	65	6.3	16.26	-	-	2536	88.2'	113.1'	141.9'
26	VERIZON WIRELESS	Generic	Panel	2100	270	65	6.3	15.53	-	-	2143.6	88.2'	116.2'	141.9'
27	VERIZON WIRELESS	Generic	Panel	751	270	65	6.3	12.56	-	-	1081.8	87.9'	119.2'	141.9'
28	T-MOBILE	Generic	Panel	1900	0	65	4.6	15.43	-	-	2094.8	92.3'	119.2'	132.7'
29	T-MOBILE	Generic	Panel	2100	0	65	4.6	15.23	-	-	2000.6	97.6'	120.4'	132.7'
30	T-MOBILE	Generic	Panel	1900	120	65	4.6	15.43	-	-	2094.8	97'	116.5'	132.7'
31	T-MOBILE	Generic	Panel	2100	120	65	4.6	15.23	-	-	2000.6	93.8'	111.5'	132.7'
32	T-MOBILE	Generic	Panel	1900	240	65	4.6	15.43	-	-	2094.8	91.3'	113.9'	132.7'
33	T-MOBILE	Generic	Panel	2100	240	65	4.6	15.23	-	-	2000.6	87.4'	118.4'	132.7'

NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

Note: The 737 MHz LTE technology is being added to an existing antenna.

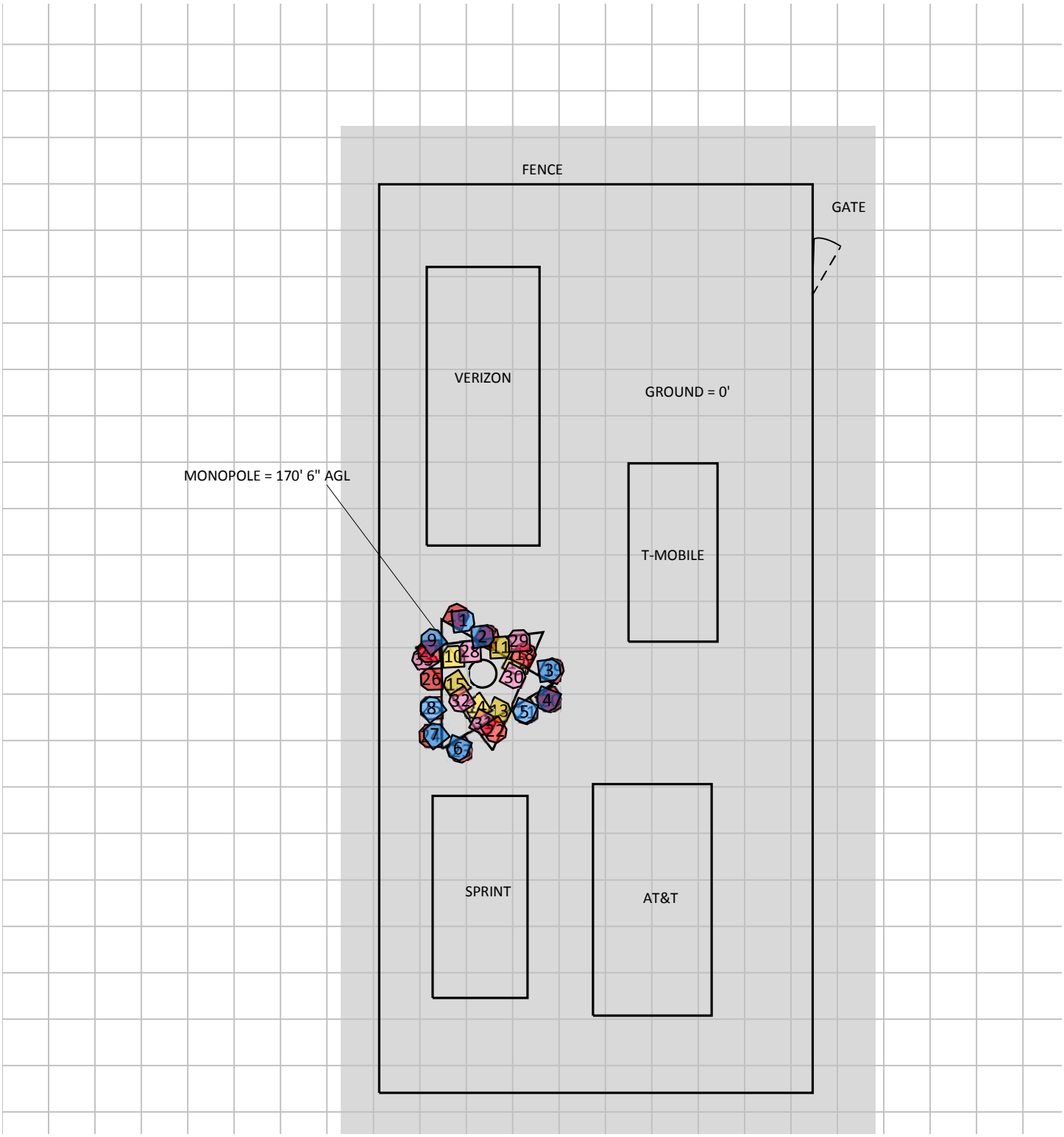
4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

- Ground= 0'

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: Bristol Center
Composite Diagram



% of FCC Public Exposure Limit
Spatial average 0' - 6'

% of FCC Public Exposure Limit

>= 5000	>= 500	>= 100	>= 5	< 5

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

Proposed Barriers/ Signs

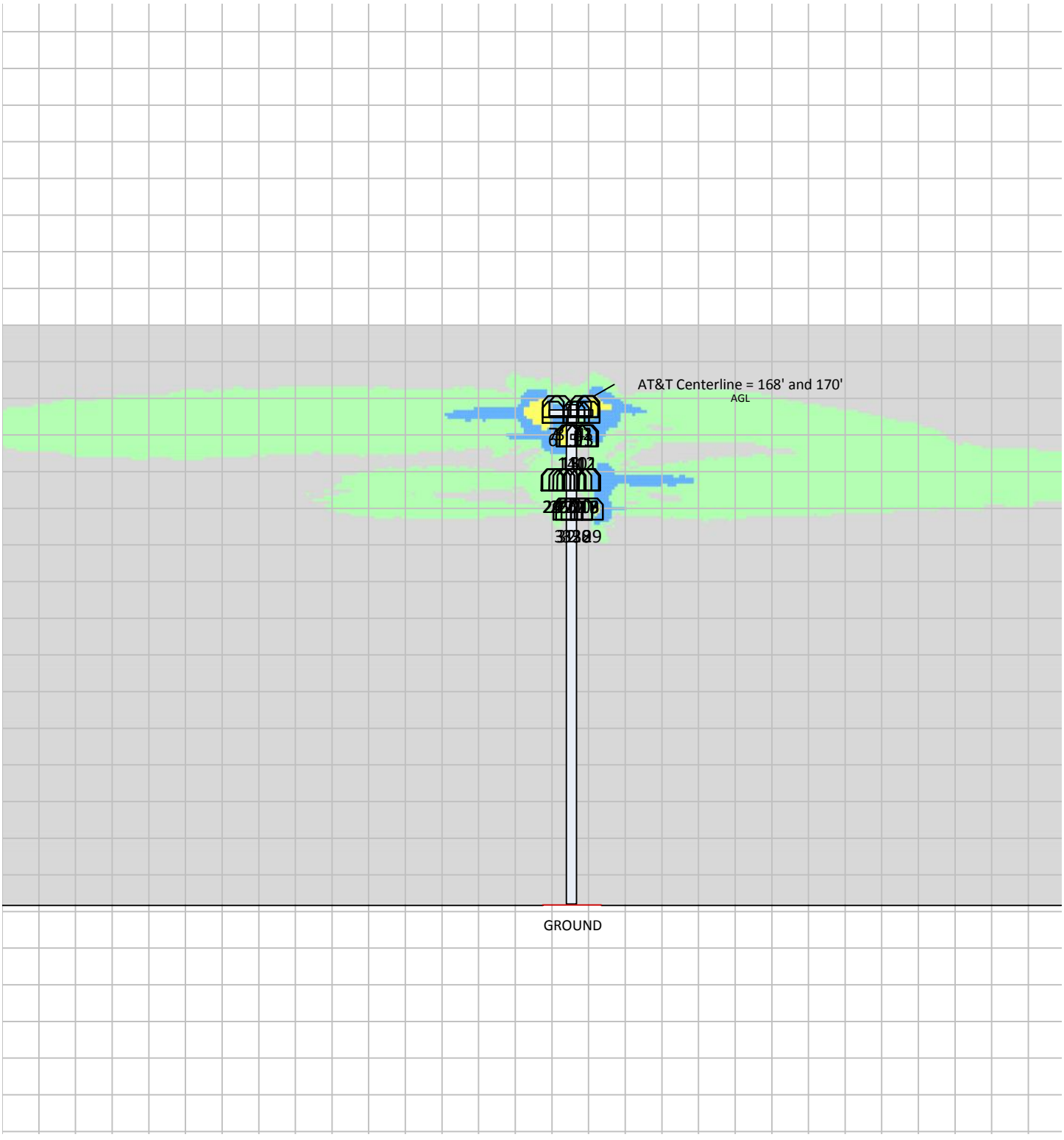
(Feet)

0 8.1 16.2

www.sitesafe.com
Site Name:Bristol Center
5/21/2018 3:22:21 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

RF Exposure Simulation For: Bristol Center
Elevation View



% of FCC Public Exposure Limit

% of FCC Public Exposure Limit
>= 5000 | >= 500 | >= 100 | >= 5 | < 5

Carrier Identification
AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

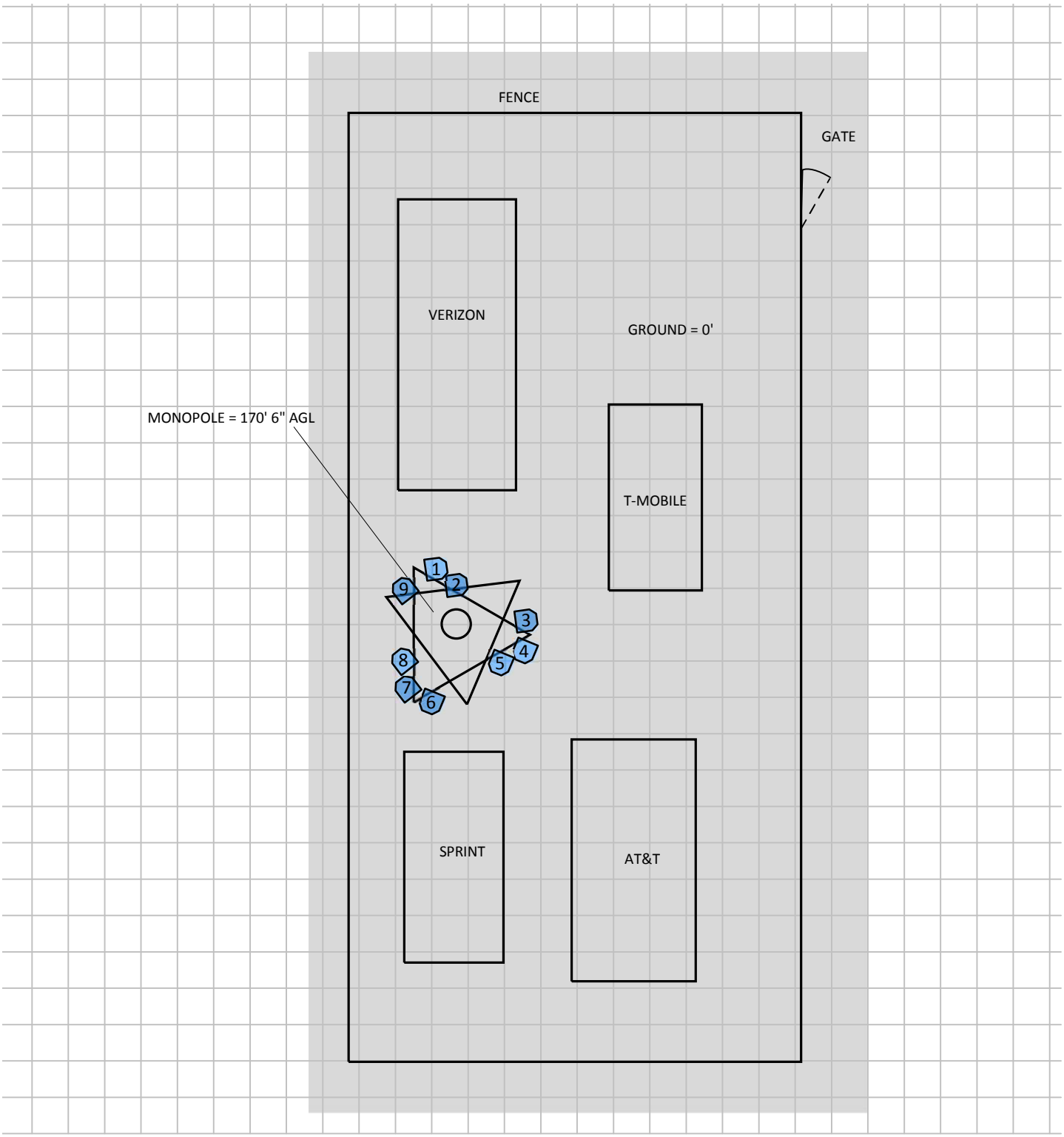
Proposed Barriers/ Signs

(Feet)
0 24.1 48.2

www.sitesafe.com
Site Name:Bristol Center
5/21/2018 3:27:13 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

RF Exposure Simulation For: Bristol Center
AT&T Mobility, LLC Contribution



% of FCC Public Exposure Limit
Spatial average 0' - 6'

% of FCC Public Exposure Limit

>= 5000	>= 500	>= 100	>= 5	< 5

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

Proposed Barriers/ Signs

(Feet)

0 7.8 15.6

www.sitesafe.com
Site Name:Bristol Center
5/21/2018 3:23:44 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

(1) Yellow Caution 2 sign is required to be installed on the pole access.

Notes:

- This report's diagrams do not show the Access locations because the data provided did not include them.
- Signage may already be in place. Sitesafe does not have record of any existing signage because there were no previous visits or data supplied regarding them. All remediation is based on a worst-case scenario.

6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, LLC., in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Zyotty Thamsil.

May 21, 2018

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

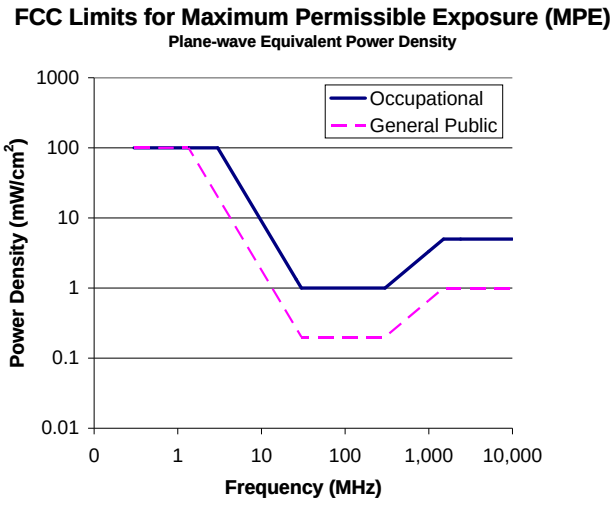
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –
- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone**.
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers**.
- Yellow represents areas predicted to exceed Occupational MPE limits. Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the

potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, LLC.
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-ionising Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

StartAntennaData It is advisable to provide an ID (ant 1) for all antennas

ID	Name	(MHz) Freq	Trans Power	Trans Count	Coax Len	Coax Type	Other Losses	Input Power	Calc Power	Mfg	Model	(ft) X	(ft) Y	(ft) Z	Type	(ft) Aper	dBd Gain	BWdth Pt Dir	Uptime Profile	ON flag
1	AT&T MOE	850	18.32281	1	0			18.32281		Kathrein-S	800-10121	91.59	122.52	167.729	Panel	4.542	11.35	87.6;85	100%	ON•
1	AT&T MOE	850	73.28245	1	0			73.28245		Kathrein-S	800-10121	91.59	122.52	167.729	Panel	4.542	11.35	87.6;85	100%	ON•
2	AT&T MOE	737	62.47382	1	0			62.47382		Andrew	SBNH-1D6	93.68	120.85	165.9835	Panel	8.033	13.733	71;85	100%	ON•
3	AT&T MOE	2300	47.09775	1	0			47.09775		CCI Antenr	TPA-65R-L	100.88	117.19	164	Panel	8	14.36	65;85	100%	ON•
3	AT&T MOE	737	65.01268	1	0			65.01268		CCI Antenr	TPA-65R-L	100.88	117.19	164	Panel	8	13.56	61.9;85	100%	ON•
3	AT&T MOE	1900	75.33044	2	0			150.6609		CCI Antenr	TPA-65R-L	100.88	117.19	164	Panel	8	13.86	68.2;85	100%	ON•
4	AT&T MOE	850	18.32281	1	0			18.32281		Kathrein-S	800-10121	100.66	113.99	167.729	Panel	4.542	11.35	87.6;205	100%	ON•
4	AT&T MOE	850	73.28245	1	0			73.28245		Kathrein-S	800-10121	100.66	113.99	167.729	Panel	4.542	11.35	87.6;205	100%	ON•
5	AT&T MOE	737	50.46615	1	0			50.46615		KMW	AM-X-CD-1	98.2	112.75	164	Panel	8	14.66	68;205	100%	ON•
6	AT&T MOE	737	65.01268	1	0			65.01268		CCI Antenr	TPA-65R-L	91.05	108.73	164	Panel	8	13.56	61.9;205	100%	ON•
6	AT&T MOE	1900	75.33044	2	0			150.6609		CCI Antenr	TPA-65R-L	91.05	108.73	164	Panel	8	13.86	68.2;205	100%	ON•
6	AT&T MOE	2300	47.09775	1	0			47.09775		CCI Antenr	TPA-65R-L	91.05	108.73	164	Panel	8	14.36	65;205	100%	ON•
7	AT&T MOE	850	18.32281	1	0			18.32281		Kathrein-S	800-10121	88.53	110.24	167.729	Panel	4.542	11.35	87.6;325	100%	ON•
7	AT&T MOE	850	73.28245	1	0			73.28245		Kathrein-S	800-10121	88.53	110.24	167.729	Panel	4.542	11.35	87.6;325	100%	ON•
8	AT&T MOE	737	68.07696	1	0			68.07696		KMW	AM-X-CD-1	88.19	113.09	167	Panel	6	13.36	65;325	100%	ON•
9	AT&T MOE	737	81.28308	1	0			81.28308		Kathrein-S	800-10798	88.25	120.39	164.729	Panel	6.542	12.59	66;325	100%	ON•
9	AT&T MOE	1900	78.15747	2	0			156.3149		Kathrein-S	800-10798	88.25	120.39	164.729	Panel	6.542	13.7	63;325	100%	ON•
9	AT&T MOE	2300	61.23506	1	0			61.23506		Kathrein-S	800-10798	88.25	120.39	164.729	Panel	6.542	13.22	64;325	100%	ON•
10	SPRINT	862	40	1	0			40		Generic	6 Ft./65 De	90.52	118.65	156.854	Panel	6.292	13.43	65;0	100%	ON•
10	SPRINT	1900	60	1	0			60		Generic	6 Ft./65 De	90.52	118.65	156.854	Panel	6.292	16.26	65;0	100%	ON•
11	SPRINT	2500	50.48007	1	0			50.48007		Generic	2.5 GHz/4	95.61	119.65	157.9585	Panel	4.083	15.01	65;0	100%	ON•
12	SPRINT	862	40	1	0			40		Generic	6 Ft./65 De	97.34	117.99	156.854	Panel	6.292	13.43	65;120	100%	ON•
12	SPRINT	1900	60	1	0			60		Generic	6 Ft./65 De	97.34	117.99	156.854	Panel	6.292	16.26	65;120	100%	ON•
13	SPRINT	2500	50.48007	1	0			50.48007		Generic	2.5 GHz/4	95.47	112.78	157.9585	Panel	4.083	15.01	65;120	100%	ON•
14	SPRINT	1900	60	1	0			60		Generic	6 Ft./65 De	93.04	113.21	156.854	Panel	6.292	16.26	65;240	100%	ON•
14	SPRINT	862	40	1	0			40		Generic	6 Ft./65 De	93.04	113.21	156.854	Panel	6.292	13.43	65;240	100%	ON•
15	SPRINT	2500	50.48007	1	0			50.48007		Generic	2.5 GHz/4	90.76	115.64	157.9585	Panel	4.083	15.01	65;240	100%	ON•
16	VERIZON V	850	80	1	0			80		Generic	6 Ft./65 De	90.9	123.07	141.854	Panel	6.292	13.43	65;30	100%	ON•
17	VERIZON V	1900	60	1	0			60		Generic	6 Ft./65 De	94.18	120.78	141.854	Panel	6.292	16.26	65;30	100%	ON•
18	VERIZON V	2100	60	1	0			60		Generic	6 Ft./65 De	98.18	118.93	141.854	Panel	6.292	15.53	65;30	100%	ON•
19	VERIZON V	751	60	1	0			60		Generic	6 Ft./65 De	101.18	117.21	141.854	Panel	6.292	12.56	65;30	100%	ON•
20	VERIZON V	850	80	1	0			80		Generic	6 Ft./65 De	100.9	113.93	141.854	Panel	6.292	13.43	65;150	100%	ON•
21	VERIZON V	1900	60	1	0			60		Generic	6 Ft./65 De	98.33	112.64	141.854	Panel	6.292	16.26	65;150	100%	ON•
22	VERIZON V	2100	60	1	0			60		Generic	6 Ft./65 De	95.04	110.64	141.854	Panel	6.292	15.53	65;150	100%	ON•
23	VERIZON V	751	60	1	0			60		Generic	6 Ft./65 De	91.33	108.5	141.854	Panel	6.292	12.56	65;150	100%	ON•
24	VERIZON V	850	80	1	0			80		Generic	6 Ft./65 De	88.04	110.07	141.854	Panel	6.292	13.43	65;270	100%	ON•
25	VERIZON V	1900	60	1	0			60		Generic	6 Ft./65 De	88.18	113.07	141.854	Panel	6.292	16.26	65;270	100%	ON•
26	VERIZON V	2100	60	1	0			60		Generic	6 Ft./65 De	88.18	116.21	141.854	Panel	6.292	15.53	65;270	100%	ON•
27	VERIZON V	751	60	1	0			60		Generic	6 Ft./65 De	87.9	119.21	141.854	Panel	6.292	12.56	65;270	100%	ON•
28	T-MOBILE	1900	60	1	0			60		Generic	4 Ft./65 De	92.33	119.21	132.7	Panel	4.6	15.43	65;0	100%	ON•
29	T-MOBILE	2100	60	1	0			60		Generic	4 Ft./65 De	97.61	120.36	132.7	Panel	4.6	15.23	65;0	100%	ON•
30	T-MOBILE	1900	60	1	0			60		Generic	4 Ft./65 De	97.04	116.5	132.7	Panel	4.6	15.43	65;120	100%	ON•
31	T-MOBILE	2100	60	1	0			60		Generic	4 Ft./65 De	93.76	111.5	132.7	Panel	4.6	15.23	65;120	100%	ON•
32	T-MOBILE	1900	60	1	0			60		Generic	4 Ft./65 De	91.33	113.93	132.7	Panel	4.6	15.43	65;240	100%	ON•
33	T-MOBILE	2100	60	1	0			60		Generic	4 Ft./65 De	87.35	118.38	132.7	Panel	4.6	15.23	65;240	100%	ON•

StartSymbolData

371 TERRYVILLE AVE

Location	371 TERRYVILLE AVE	**Mblu**	61/ / 67-1/ /
Acct#	0136999	**Owner**	BRISTOL HOSPITAL INC
Assessment	$363,370	**Appraisal**	$519,100
PID	2194	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$280,000	$239,100	$519,100
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$196,000	$167,370	$363,370

Owner of Record

Owner BRISTOL HOSPITAL INC
Co-Owner
Address BREWSTER RD
BRISTOL, CT 06010

Sale Price $400,000
Certificate 1
Book & Page 1564/ 795
Sale Date 06/08/2004
Instrument 00

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
BRISTOL HOSPITAL INC	$400,000	1	1564/ 795	00	06/08/2004
LAVIERO REALTY LLC	$0		1564/ 792		06/08/2004
LAVIERO REALTY LLC	$0		1352/ 30		02/08/2001
LAVIERO MORRIS + RICHARD	$0		1139/ 447		09/23/1994
GTT CORP TRUSTEE OF OREGON	$0		1103/ 330		09/30/1993

Building Information

Building 1 : Section 1

Year Built: 1996
Living Area: 960
Replacement Cost: $117,937

Building Percent Good: 91

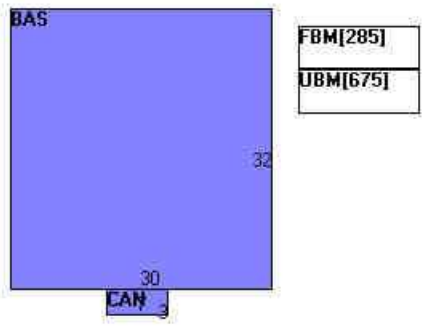
Replacement Cost Less Depreciation: $107,300

Building Attributes	
Field	**Description**
STYLE	Office Bldg
MODEL	Comm/Ind
Stories:	1
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall/Sheetr
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Electr Basebrd
AC Type	Central
Bldg Use	Hospital 94
Bedrooms	
Full Baths	
Half Baths	
1st Floor Use:	
Heat/AC	Heat/AC Split
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Walls
Rooms/Prtns	Average
Wall Height	10
% Comn Wall	

Building Photo

0136999 03/20/2016
(http://images.vgsi.com/photos2/BristolCTPhotos//\00\03\34/29

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	960	960
CAN	Canopy	21	0
FBM	Basement, Finshed	285	0
UBM	Basement, Unfinished	675	0
		1,941	960

Building 2 : Section 1

Year Built: 1996
Living Area: 3,900
Replacement Cost: $185,406
Building Percent Good: 78
Replacement Cost Less Depreciation: $144,600

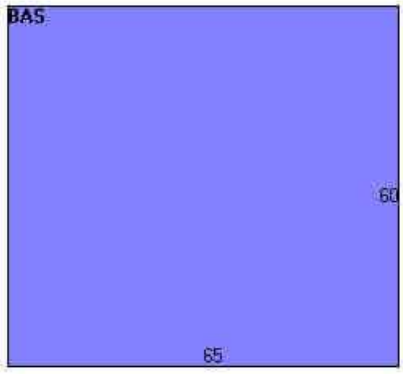
Building Attributes : Bldg 2 of 2	
Field	**Description**

STYLE	Pre-Eng Garage
MODEL	Ind/Comm
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	Hospital 96
Bedrooms	
Full Baths	
Half Baths	
1st Floor Use:	
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	Average
Wall Height	18
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//\00\02\98/62

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	3,900	3,900
		3,900	3,900

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
OHD	Overhead Door	2 Units	$0	2
MEZ2	Mezzanine Fin.	600 S.F.	$12,900	2

Land

Land Use

Use Code	928
Description	Hospital 94
Zone	I

Land Line Valuation

Size (Acres)	1.8
Frontage	412
Depth	

Neighborhood		**Assessed Value**	$167,370
Alt Land Appr	No	**Appraised Value**	$239,100
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving Asph.			8285 S.F.	$8,700	1
LT1	Light (1fixt)			2 UNITS	$1,900	1
FN3	Fence 6'			470 L.F.	$3,600	1
SHD1	Shed	MT	Metal	160 S.F.	$1,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$280,000	$239,100	$519,100
2016	$283,100	$227,400	$510,500
2015	$283,100	$227,400	$510,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$196,000	$167,370	$363,370
2016	$198,170	$159,180	$357,350
2015	$198,170	$159,180	$357,350

Date: **June 05, 2018**

Marianne Dunst
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Black & Veatch Corp.
6800 W 115th St. Suite 2292
Overland Park, KS 66211
(913) 458-8145

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CTL05833
	Carrier Site Name:	Briston Center
Crown Castle Designation:	**Crown Castle BU Number:**	842859
	Crown Castle Site Name:	BRISTOL CENTER
	Crown Castle JDE Job Number:	499555
	Crown Castle Work Order Number:	1552005
	Crown Castle Order Number:	437368 Rev. 0
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	194393
Site Data:	**371 Terryville Avenue, Bristol, Hartford County, CT** **Latitude *41° 40' 47.71"*, Longitude *-72° 57' 45.18"*** **168.333 Foot - Monopole Tower**	

Dear Marianne Dunst,

Black & Veatch Corp. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1188859, in accordance with order 437368, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing/Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

***The structure has sufficient capacity once the loading changes described in the Recommendations section of this report are completed.**

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with a maximum topographic factor, Kzt, of 1.000 and Risk Category II were used in this analysis.

We at *Black & Veatch Corp.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Saranphat Klurvudthikul

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer

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1) INTRODUCTION

This tower is a 168.333 ft Monopole tower designed by Engineered Endeavors, Inc. in December of 2003. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F.

The tower has been modified multiple times in the past to accommodate additional loading.

The tower has been modified per reinforcement drawings prepared by Black & Veatch Corp., in May of 2012. Reinforcement consists of addition of reinforcement plates at 0' – 120', stiffener plates at baseplate, and new anchor rods at baseplate. Refer to post modification inspection report by Black & Veatch Corp., in October of 2012. All reinforcement plates are considered ineffective in this analysis.

The tower was later modified per reinforcement drawings prepared by GPD Group, in February of 2013. Reinforcement consists of removal of all stiffener plates. And addition of reinforcement plates at 0.75' – 115.83', stiffener plates at baseplate, and transition stiffeners at baseplate. Refer to legacy modification inspection report by B+T Group in March of 2015.

The tower was later modified per reinforcement drawings prepared by GPD Group, in August of 2013. Reinforcement consists of addition of new rebar into the existing foundation. Refer to post modification observation report by GPD Group in December of 2013.

The tower was later modified per reinforcement drawings prepared by Black & Veatch Corp., in September of 2015. Reinforcement consists of removal of some reinforcement plates at 0' – 84.67'' and all stiffener plates. And addition of reinforcement plates at 1.25' – 84.33' and 87.92' – 127.33', stiffener plates at baseplate, transition stiffeners at baseplate, and new rebar into the existing foundation. Refer to modification inspection report by Engineered Tower Solutions, PLLC., in February of 2016.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 93 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category C with topographic category 1 and crest height of 0 feet.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
168.0	169.0	1	raycap	DC6-48-60-18-8F	2 4	3/8 7/8	1
	168.0	1	kathrein	80010798 w/ Mount Pipe			
		2	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe			
		3	ericsson	RRUS 32			
		3	ericsson	RRUS 32 B2			
		3	ericsson	RRUS E2 B29			

Notes:
1) See Appendix B for proposed coax configuration

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
168.0	169.0	1	andrew	SBNH-1D6565C w/ Mount Pipe	1 1 2 6 1	3/8 1/2 7/8 1-5/8 2” conduit	1, 4
		3	ericsson	RRUS-11			
		3	kathrein	800 10121 w/ Mount Pipe			
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		1	kmw communications	AM-X-CD-17-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
	168.0	1	cci tower mounts	Platform Mount [LP 303-1]			
	167.0	6	kathrein	860 10025			
		1	raycap	DC6-48-60-18-8F			
158.0	158.0	3	alcatel lucent	1900MHz RRH (65MHz)	3	1-1/4	1
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		1	cci tower mounts	T-Arm Mount [TA 602-3]			
		2	powerwave technologies	P40-16-XLPP-RR-A w/ Mount Pipe			
		1	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	alcatel lucent	TD-RRH8x20-25	1	1-1/4	2
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			
	155.5	1	site pro 1	PQ-1245L [NA 509-3]			
148.0	148.0	3	rfs celwave	APXV18-206517S-C w/ Mount Pipe	6	1-5/8	3
138.0	140.0	3	alcatel lucent	RRH2X60-PCS	1	1-5/8	2
		3	alcatel lucent	RRH2x60-700			
		3	alcatel lucent	RRH2x60-AWS			
		6	commscope	SBNHH-1D65B w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		4	antel	BXA-70063/4CF w/ Mount Pipe	12	1-5/8	1
		2	antel	BXA-70080-6CF-4 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z	-	-	1
		6	rfs celwave	FD9R6004/2C-3L			
	138.0	1	cci tower mounts	Platform Mount [LP 303-1]			
128.0	130.0	3	andrew	ONEBASE TWIN DUAL DUPLEX TMA	1 12	1-1/4 1-5/8	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
	128.0	1	cci tower mounts	Platform Mount [LP 303-1]			
70.0	70.0	1	cci tower mounts	Side Arm Mount [SO 701-1]	1	1/2	1
		1	gps	GPS_A			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Abandoned Equipment; Considered in This Analysis
4) Coax Routed in (1) 2" flexible conduits

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
-	-	-	-	-	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc.	5452600	CCISITES
4-POST-MODIFICATION INSPECTION	Black & Veatch Corp.	5111172	CCISITES
4-POST-MODIFICATION INSPECTION	GPD Group	5114340	CCISITES
4-POST-MODIFICATION INSPECTION	B+T Group	5595874	CCISITES
4-POST-MODIFICATION INSPECTION	Engineered Tower Solutions, PLLC	6121087	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc.	4529295	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	5135435	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Group	4964264	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Group	5111173	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Black & Veatch Corp.	5907572	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Black & Veatch Corp. (Mod Design)	5111174	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Black & Veatch Corp.	7010049	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) The existing base plate grout was not considered in this analysis.
5) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. The existing/proposed loading on the structure is based on CAD level drawings and carrier applications provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.

This analysis may be affected if any assumptions are not valid or have been made in error. Black & Veatch Corp. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
168.33 - 163.33	Pole	TP19.834x19x0.1875	Pole	9.8%	Pass
163.33 - 158.33	Pole	TP20.669x19.834x0.1875	Pole	18.1%	Pass
158.33 - 153.33	Pole	TP21.503x20.669x0.1875	Pole	31.2%	Pass
153.33 - 148.33	Pole	TP22.337x21.503x0.1875	Pole	43.4%	Pass
148.33 - 143.33	Pole	TP23.171x22.337x0.1875	Pole	55.1%	Pass
143.33 - 138.33	Pole	TP24.006x23.171x0.1875	Pole	65.8%	Pass
138.33 - 134.16	Pole	TP25.313x24.006x0.1875	Pole	79.9%	Pass
134.16 - 129.16	Pole	TP25.149x24.326x0.25	Pole	66.5%	Pass
129.16 - 125.5	Pole	TP25.752x25.149x0.25	Pole	74.2%	Pass
125.5 - 125.25	Pole	TP25.794x25.752x0.25	Pole	74.7%	Pass
125.25 - 120.25	Pole	TP26.617x25.794x0.25	Pole	84.2%	Pass
120.25 - 115.25	Pole	TP27.44x26.617x0.25	Pole	92.9%	Pass
115.25 - 113.83	Pole	TP27.674x27.44x0.25	Pole	95.2%	Pass
113.83 - 113.58	Pole + Reinf.	TP27.715x27.674x0.65	Reinf. 10 Tension Rupture	62.8%	Pass
113.58 - 108.58	Pole + Reinf.	TP28.538x27.715x0.6375	Reinf. 10 Tension Rupture	68.6%	Pass
108.58 - 103.58	Pole + Reinf.	TP29.361x28.538x0.625	Reinf. 10 Tension Rupture	74.0%	Pass
103.58 - 98.58	Pole + Reinf.	TP30.184x29.361x0.6125	Reinf. 10 Tension Rupture	79.1%	Pass
98.58 - 93.58	Pole + Reinf.	TP31.007x30.184x0.6	Reinf. 10 Tension Rupture	84.0%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
93.58 - 89.11	Pole + Reinf.	TP32.493x31.007x0.6	Reinf. 10 Tension Rupture	88.1%	Pass
89.11 - 83.55	Pole + Reinf.	TP32.155x31.242x0.575	Reinf. 2 Tension Rupture	97.8%	Pass
83.55 - 82.83	Pole + Reinf.	TP32.274x32.155x0.575	Reinf. 2 Tension Rupture	98.4%	Pass
82.83 - 82.58	Pole + Reinf.	TP32.315x32.274x0.6875	Reinf. 2 Tension Rupture	82.8%	Pass
82.58 - 77.58	Pole + Reinf.	TP33.135x32.315x0.675	Reinf. 2 Tension Rupture	86.2%	Pass
77.58 - 73.42	Pole + Reinf.	TP33.818x33.135x0.6625	Reinf. 2 Tension Rupture	89.0%	Pass
73.42 - 73.17	Pole + Reinf.	TP33.859x33.818x1.0125	Reinf. 2 Tension Rupture	60.9%	Pass
73.17 - 72.75	Pole + Reinf.	TP33.928x33.859x1.0125	Reinf. 2 Tension Rupture	61.1%	Pass
72.75 - 72.5	Pole + Reinf.	TP33.969x33.928x0.925	Reinf. 9 Tension Rupture	67.9%	Pass
72.5 - 67.5	Pole + Reinf.	TP34.79x33.969x0.9125	Reinf. 9 Tension Rupture	70.6%	Pass
67.5 - 64.25	Pole + Reinf.	TP35.323x34.79x0.8875	Reinf. 9 Tension Rupture	72.3%	Pass
64.25 - 64	Pole + Reinf.	TP35.364x35.323x0.7375	Reinf. 3 Tension Rupture	83.1%	Pass
64 - 59	Pole + Reinf.	TP36.185x35.364x0.7375	Reinf. 3 Tension Rupture	85.7%	Pass
59 - 54	Pole + Reinf.	TP37.006x36.185x0.7125	Reinf. 3 Tension Rupture	88.3%	Pass
54 - 49	Pole + Reinf.	TP38.702x37.006x0.7125	Reinf. 3 Tension Rupture	90.7%	Pass
49 - 42.66	Pole + Reinf.	TP37.854x37.201x0.7625	Reinf. 4 Tension Rupture	86.0%	Pass
42.66 - 37.66	Pole + Reinf.	TP38.369x37.854x0.7625	Reinf. 4 Tension Rupture	88.9%	Pass
37.66 - 32.66	Pole + Reinf.	TP38.884x38.369x0.75	Reinf. 4 Tension Rupture	91.7%	Pass
32.66 - 28.25	Pole + Reinf.	TP39.339x38.884x0.75	Reinf. 4 Tension Rupture	94.2%	Pass
28.25 - 28	Pole + Reinf.	TP39.365x39.339x1.1	Reinf. 4 Tension Rupture	66.4%	Pass
28 - 27.75	Pole + Reinf.	TP39.391x39.365x1.1	Reinf. 4 Tension Rupture	66.5%	Pass
27.75 - 27.5	Pole + Reinf.	TP39.416x39.391x0.975	Reinf. 8 Tension Rupture	79.9%	Pass
27.5 - 22.5	Pole + Reinf.	TP39.932x39.416x0.975	Reinf. 8 Tension Rupture	82.3%	Pass
22.5 - 19.25	Pole + Reinf.	TP40.267x39.932x0.975	Reinf. 8 Tension Rupture	83.8%	Pass
19.25 - 19	Pole + Reinf.	TP40.292x40.267x0.85	Reinf. 5 Tension Rupture	87.1%	Pass
19 - 14	Pole + Reinf.	TP40.807x40.292x0.8375	Reinf. 5 Tension Rupture	89.4%	Pass
14 - 9	Pole + Reinf.	TP41.323x40.807x0.825	Reinf. 5 Tension Rupture	91.6%	Pass
9 - 4	Pole + Reinf.	TP41.838x41.323x0.825	Reinf. 5 Tension Rupture	93.8%	Pass
4 - 0	Pole + Reinf.	TP42.25x41.838x0.825	Reinf. 5 Tension Rupture	95.4%	Pass
				Summary	
			Pole	95.2%	Pass
			Reinforcement	98.4%	Pass
			Overall	98.4%	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	59.3	Pass
	Base Plate		42.4	Pass
1	Base Foundation	0	77.7	Pass
	Base Foundation Soil Interaction		54.2	Pass

Structure Rating (max from all components) =	98.4%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. In order for the results of this analysis to be considered valid, the list as follows, must be completed.

a) Shield proposed carrier.

No structural modifications are required at this time, provided that the above listed changes are implemented

at&t

SITE NAME: BRISTOL CENTER
FA NUMBER: 10070954
SITE NUMBER: CTL05833
4C - MRCTB019672
5C - MRCTB022471
371 TERRYVILLE AVENUE
BRISTOL, CT 06010
HARTFORD COUNTY

CROWN CASTLE SITE NAME: BRISTOL CENTER
CROWN CASTLE SITE NUMBER: 842859

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 02862-2105
CONTACT: TODD OLIVER
PHONE: (774) 369-3613
E-MAIL: TODD.OLIVER@SMARTLINKLLC.COM

SITE ACQUISITION

COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862-2105
CONTACT: SHARON KEEFE
PHONE: (978) 930-3918
E-MAIL: SHARON.KEEFE@SMARTLINKLLC.COM

ENGINEER

COMPANY: MASER CONSULTING P.A.
ADDRESS: 2000 MIDLANTIC DRIVE, SUITE 100
CITY, STATE, ZIP: MT. LAUREL, NJ 08054
CONTACT: PETROS TSOUKALAS
PHONE: (856) 797-0412 x4102
E-MAIL: PTSOUKALAS@MASERCONSULTING.COM

RF ENGINEER

COMPANY: NEW CINGULAR WIRELESS PCS, LLC
ADDRESS: 550 COCHITUATE RD.
CITY, STATE, ZIP: FRAMINGHAM, MA 01701
CONTACT: MD MATEEN
E-MAIL: MM093Q@ATT.COM

CONSTRUCTION MANAGER

COMPANY: SMARTLINK, LLC.
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 02862-2105
CONTACT: MARK DONNELLY
PHONE: (617) 515-2080
E-MAIL: MARK.DONNELLY@SMARTLINKLLC.COM

SITE INFORMATION

APPLICANT/LESSEE

at&t

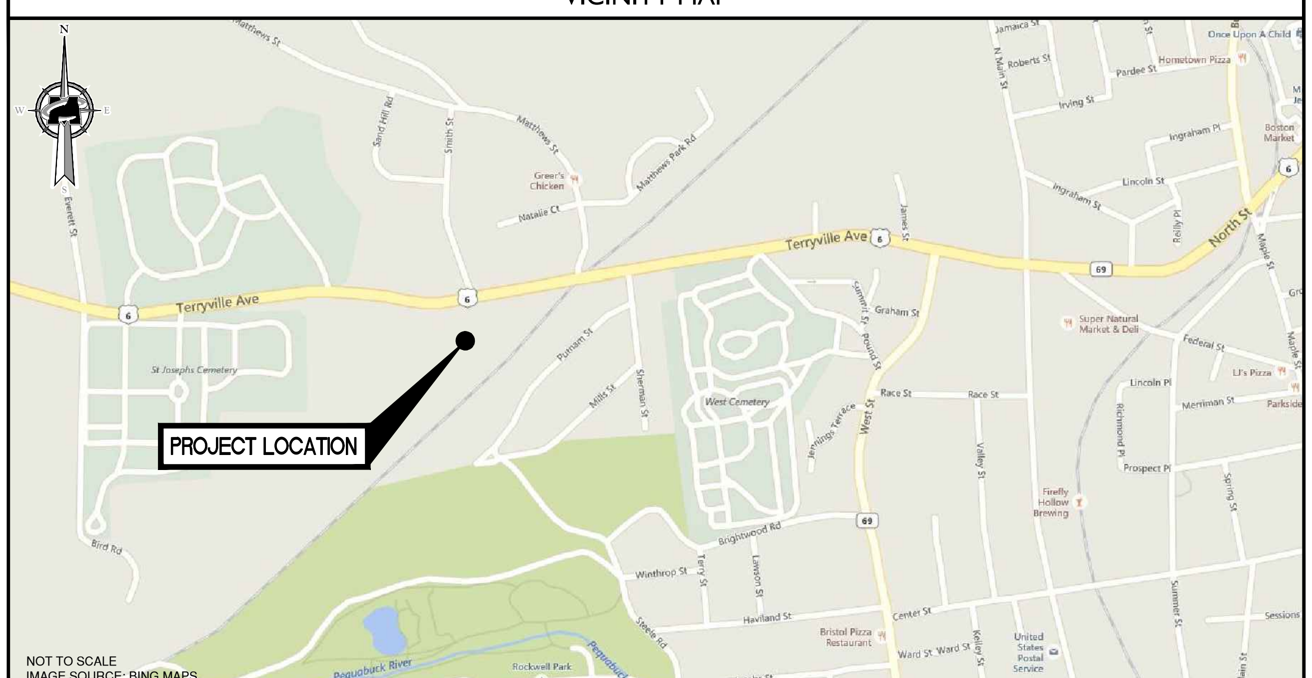
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE RD.
FRAMINGHAM, MA 01701

PROPERTY/TOWER OWNER:

NAME: CROWN CASTLE INTERNATIONAL
ADDRESS: 12 GILL STREET, SUITE 5800
CITY, STATE, ZIP: WOBURN, MA 01801
SITE ID#: 842859

LATITUDE:	41.6808919° N
LONGITUDE:	72.9656989° W
LAT./LONG. TYPE:	NAD 83
AREA OF CONSTRUCTION:	EXISTING OUTDOOR EQUIPMENT AND MONOPOLE
ZONING/JURISDICTION:	CITY OF BRISTOL
CURRENT USE/PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
CONSTRUCTION TYPE:	IIB
USE GROUP:	U

VICINITY MAP



NOT TO SCALE
IMAGE SOURCE: BING MAPS

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

1. 2016 CONNECTICUT STATE BUILDING CODE INCORPORATING THE 2012 IBC
2. NATIONAL ELECTRIC CODE 2014
3. NATIONAL FIRE PROTECTION ASSOCIATION 70 - 2015
4. LIGHTNING PROTECTION CODE 2011
5. AMERICAN CONCRETE INSTITUTE 318
6. AMERICAN INSTITUTE OF STEEL CONSTRICTION 360-10.
7. EIA/TIA-222 REVISION G
8. TIA 607 FOR GROUNDING
9. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
10. IEEE C2 LATEST EDITION
11. TELCORDIA GR-1275
12. ANSI T1.311

GENERAL CONTRACTOR NOTES

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND PLAN AND EQUIPMENT PLAN
A-2	ELEVATION VIEW, DETAILS AND ANTENNA SCHEDULE
A-3	ANTENNA LAYOUTS
A-4	DETAILS
A-5	DETAILS
A-6	RF PLUMBING DIAGRAMS
G-1	GROUNDING DETAILS

PROJECT DESCRIPTION/SCOPE OF WORK

THIS PROJECT WILL BE COMPRISED OF:

- INSTALL (3) NEW AT&T ANTENNAS, (1) PER SECTOR
- INSTALL (3) NEW RRUS-32 B2, (1) PER SECTOR
- INSTALL (3) NEW RRUS-32, (1) PER SECTOR
- INSTALL (3) NEW RRUS-E2, (1) PER SECTOR
- (1) PROPOSED DC-6 SURGE SUPPRESSION DOME
- (2) PROPOSED 6/C DC POWER CABLES
- INSTALL (1) NEW 12 PAIR FIBER TRUNK
- REMOVE PIPE MASTS IN POSITION #4, (1) PER SECTOR

PROPOSED PROJECT SCOPE BASED ON 5C RFDS ID# 1736682 VERSION 3.0, LAST UPDATED 11/08/2017.

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at&t

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85 RANGEWAY ROAD
BUILDING 3, SUITE 102
NORTH BILLERICA, CT 01862-2105
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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE :	JOB NUMBER :
AS SHOWN	17946126A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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3	06/22/18	FOR CONSTRUCTION	AJC	RA
2	04/16/18	REVISED PER RF COMMENTS	AJC	RA
1	01/03/18	FOR CONSTRUCTION	AJC	PET
0	12/08/17	ISSUED FOR REVIEW	MSG	PET

STATE OF CONNECTICUT PETROS TSOUKALAS LICENSED PROFESSIONAL ENGINEER 32577

PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.32577

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

BRISTOL CENTER
FA# 10070954
SITE # CTL05833

371 TERRYVILLE AVENUE
BRISTOL, CT 06010
HARTFORD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE :
TITLE SHEET

SHEET NUMBER :
T-1

GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5O HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

    CONTRACTOR - SMARTLINK
    SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
    OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)

23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE :	JOB NUMBER :
AS SHOWN	17946126A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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3	06/22/18	FOR CONSTRUCTION	AJC	RA
2	04/16/18	REVISED PER RF COMMENTS	AJC	RA
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0	12/08/17	ISSUED FOR REVIEW	MSG	PET

STATE OF CONNECTICUT · PETROS TSOUKALAS · 32577 · LICENSED · PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.32577

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SITE NAME:

BRISTOL CENTER
FA# 10070954
SITE # CTL05833

371 TERRYVILLE AVENUE
BRISTOL, CT 06010
HARTFORD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE : GENERAL NOTES

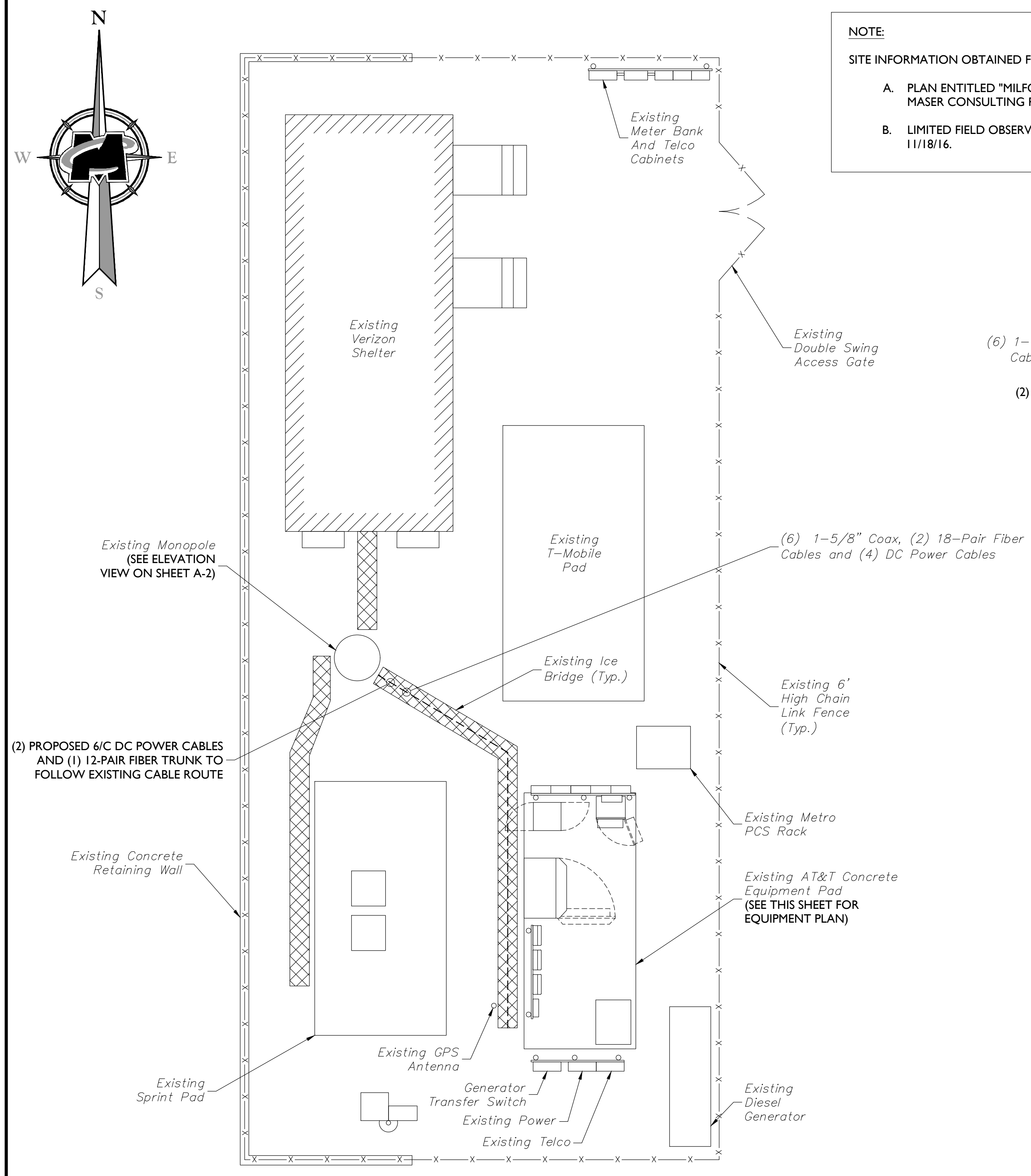
SHEET NUMBER : GN-1

NOTE:

SITE INFORMATION OBTAINED FROM THE FOLLOWING:

A. PLAN ENTITLED "MILFORD-BRISTOL CENTER" PREPARED BY MASER CONSULTING P.A. LAST REVISED 08/09/2017.

B. LIMITED FIELD OBSERVATION BY MASER CONSULTING P.A. ON 11/18/16.



COMPOUND PLAN

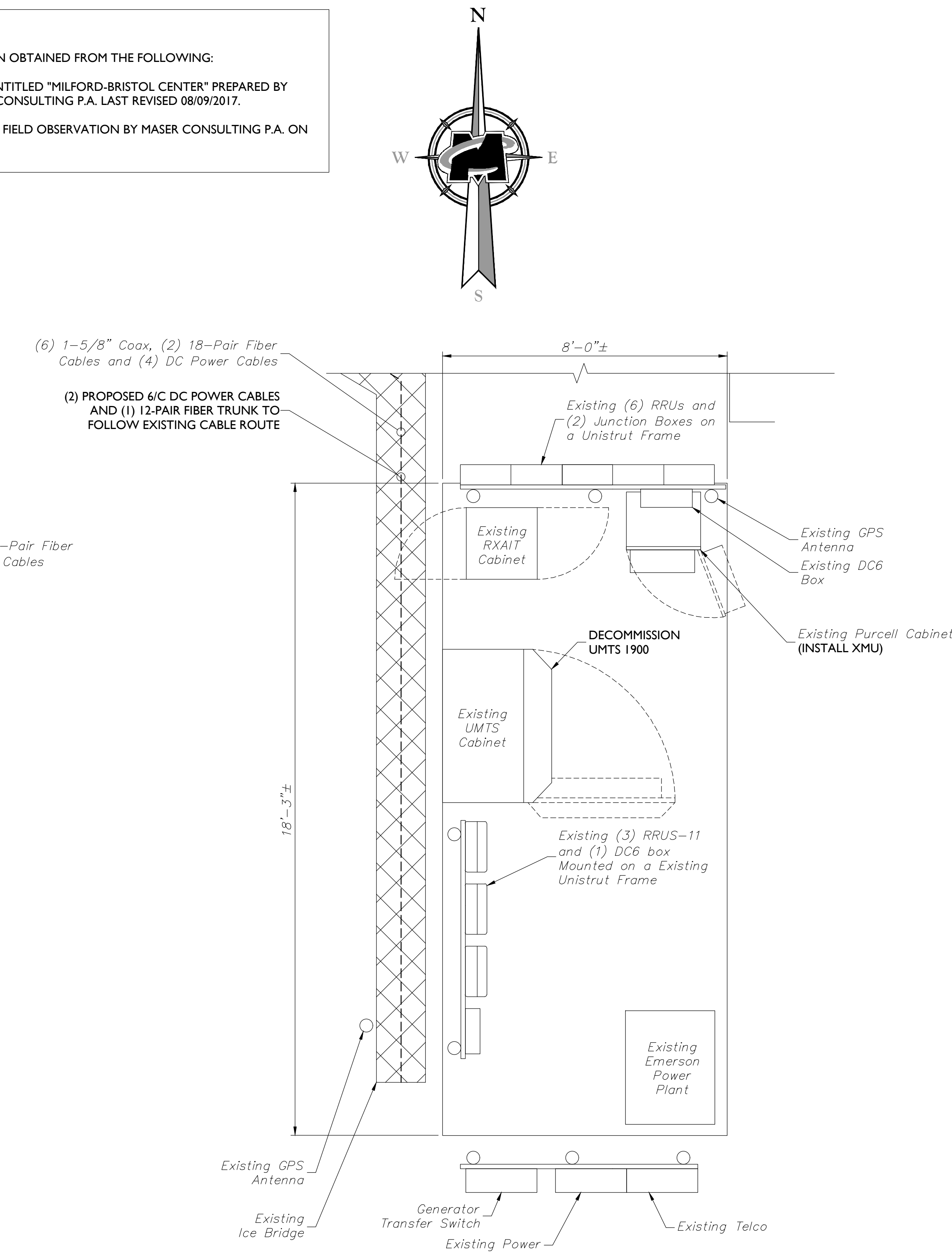
GRAPHIC SCALE

5 0 2.5 5 10

(IN FEET)

SCALE: 1" = 5' FOR 24"X36" DRAWINGS

(DO NOT SCALE 11"X17" DRAWINGS)



EQUIPMENT PLAN

GRAPHIC SCALE

2 0 1 2 4

(IN FEET)

SCALE: 1" = 2' FOR 24"X36" DRAWINGS

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PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.32577

STATE OF CONNECTICUT · PETROS TSOUKALAS · 32577 · LICENSED · PROFESSIONAL ENGINEER

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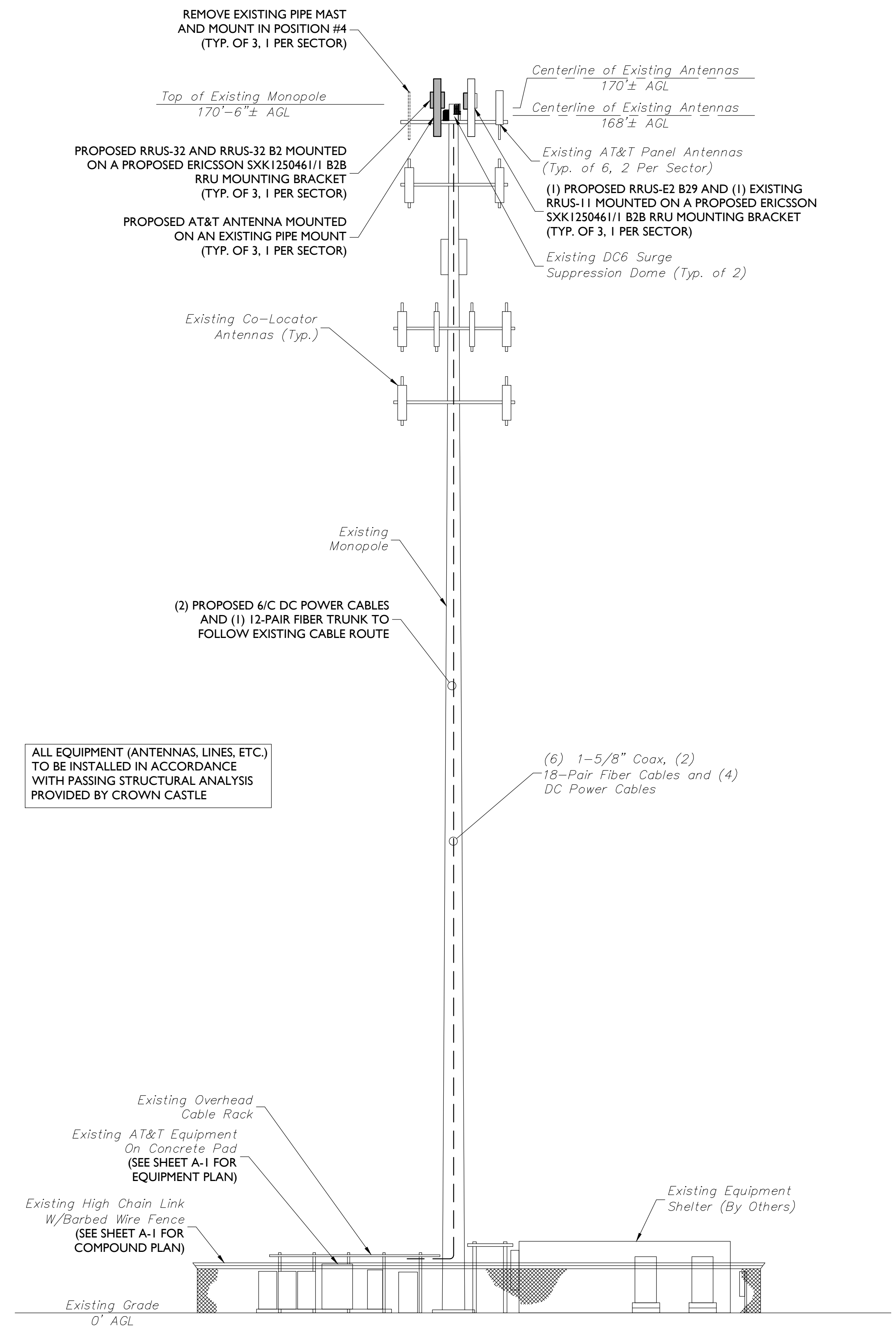
SHEET TITLE :

COMPOUND PLAN AND EQUIPMENT PLAN

SHEET NUMBER :

A-1



ALL EQUIPMENT (ANTENNAS, LINES, ETC.) TO BE INSTALLED IN ACCORDANCE WITH PASSING STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE

ELEVATION VIEW

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)

SCALE: 1" = 10' FOR 24"X36" DRAWINGS

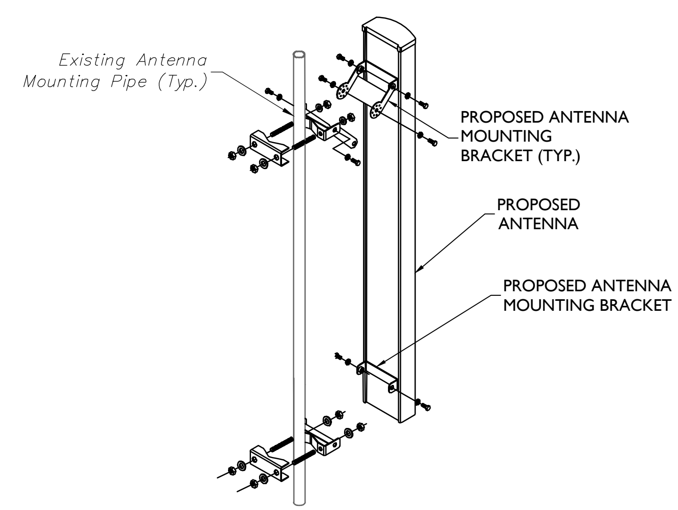
(DO NOT SCALE 11"X17" DRAWINGS)

3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS
6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE

PROPOSED ANTENNA AND RRUS CONFIGURATION

SECTOR		EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL. ELEV (ft.)	RRUS/TMA/DIPLEXER	STATUS	FEEDER COUNT	FEEDER TYPE	FEEDER STATUS
ALPHA	A1	Kathrein 80010121	Kathrein 80010121	UMTS / LTE	REMAIN	54.50	10.30	5.90	44.10	85°	170'	(1) RRUS-11 (AT GRADE) (2) LGP 21901 Diplexer LGP 21401 TMA	REMAIN	2	1-5/8" COAX	REMAIN
	A2	AndrewSBNH-1D6565C	AndrewSBNH-1D6565C	LTE	REMAIN	94.60	11.90	7.10	66.10	85°	170'	(1) RRUS-11	REMAIN			
	A3		CCI TPA-65R-LCUUUU-H8	LTE	NEW	96.00	14.40	8.60	75.00	85°	168'	(1) RRUS-32 (1) RRUS-32 B2 (1) RRUS-E2 B29	NEW NEW NEW	2/1 '2/1	FIBER/DC FIBER/DC	REMAIN NEW
	A4	VACANT MAST	-	-	REMOVE	-	-	-	-	-	-	-				
BETA	B1	Kathrein 80010121	Kathrein 80010121	UMTS / LTE	REMAIN	54.50	10.30	5.90	44.10	205°	170'	(1) RRUS-11 (AT GRADE) (2) LGP 21901 Diplexer LGP 21401 TMA	REMAIN	2	1-5/8" COAX	REMAIN
	B2	KMW AM-X-CD-17-65-OOT-RET	KMW AM-X-CD-17-65-OOT-RET	LTE	REMAIN	96.00	11.80	5.90	59.50	205°	170'	(1) RRUS-11	REMAIN			
	B3		CCI TPA-65R-LCUUUU-H8	LTE	NEW	96.00	14.40	8.60	75.00	205°	168'	(1) RRUS-32 (1) RRUS-32 B2 (1) RRUS-E2 B29	NEW NEW NEW	2/1 '2/1	FIBER/DC FIBER/DC	REMAIN SHARED
	B4	VACANT MAST	-	-	REMOVE	-	-	-	-	-	-	-				
GAMMA	C1	Kathrein 80010121	Kathrein 80010121	UMTS / LTE	REMAIN	54.50	10.30	5.90	44.10	325°	170'	(1) RRUS-11 (AT GRADE) (2) LGP 21901 Diplexer LGP 21401 TMA	REMAIN	2	1-5/8" COAX	REMAIN
	C2	KMW AM-X-CD-16-65-OOT-RET	KMW AM-X-CD-16-65-OOT-RET	LTE	REMAIN	72.00	11.80	5.90	48.50	325°	170'	(1) RRUS-11	REMAIN			
	C3	VACANT MAST	Kathrein 80010798	LTE	NEW	78.50	14.80	6.70	86.20	325°	168'	(1) RRUS-32 (1) RRUS-32 B2 (1) RRUS-E2 B29	NEW NEW NEW	2/1 '2/1	FIBER/DC FIBER/DC	REMAIN SHARED
	C4	VACANT MAST	-	-	REMOVE	-	-	-	-	-	-	-				

ANTENNA SCHEDULE

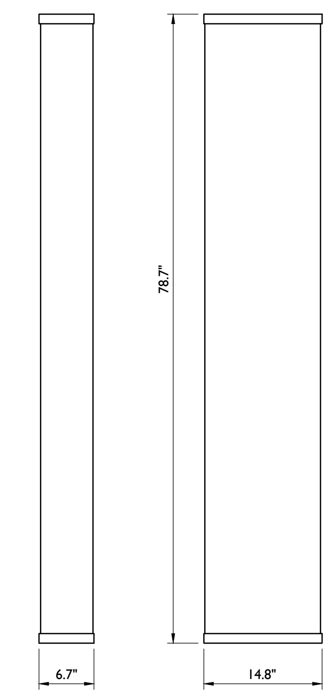


ANTENNA MOUNTING DETAIL

NOT TO SCALE

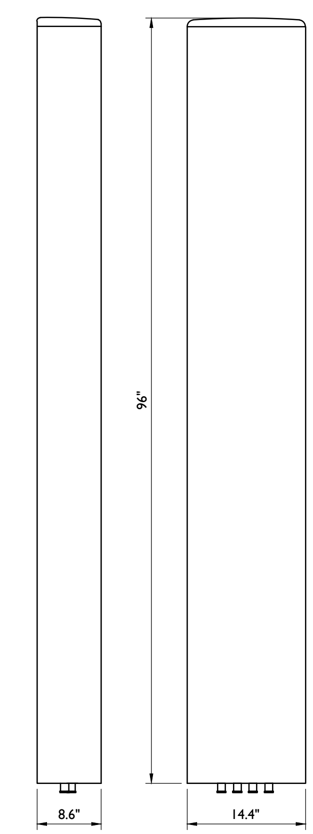
STRUCTURAL NOTES:

1. A STRUCTURAL ANALYSIS TO DETERMINE IF THE EXISTING STRUCTURE AND FOUNDATION CAN ADEQUATELY SUPPORT THE PROPOSED LOADING HAS NOT BEEN PREPARED/ANALYZED BY MASER AND IS TO BE PERFORMED BY OTHERS.
2. NO CONSTRUCTION OF THE PROPOSED LOADING SHOWN SHALL PROCEED UNTIL ADEQUACY OF EXISTING STRUCTURE AND FOUNDATION, INCLUDING THE PROPOSED AT&T ANTENNA MOUNTING CONFIGURATION SHOWN HEREIN, HAS BEEN CONFIRMED BY SMARTLINK.
3. THE STRUCTURE ELEVATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REFLECT AS-BUILT FIELD CONDITIONS FOR ALL EXISTING INVENTORY LOADING/ANTENNAS/APPURTENANCES ON STRUCTURE. REFER TO THE LATEST STRUCTURAL ANALYSIS FOR EXISTING STRUCTURE LOADING AND THE PROPOSED METHOD OF ATTACHMENT OF THE PROPOSED ANTENNAS/CABLES.
4. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.



WEIGHT = 86.2 LBS

KATHRIEN 800-10798



WEIGHT =75 LBS

CCI TPA-65R-LCUUUU-H8

ANTENNA DETAILS

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2	04/16/18	REVISED PER RF COMMENTS	AJC	RA
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STATE OF CONNECTICUT PETROS TSOUKALAS 32577 LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.32577

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SITE # CTL05833

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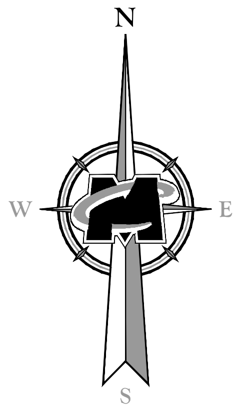
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE :

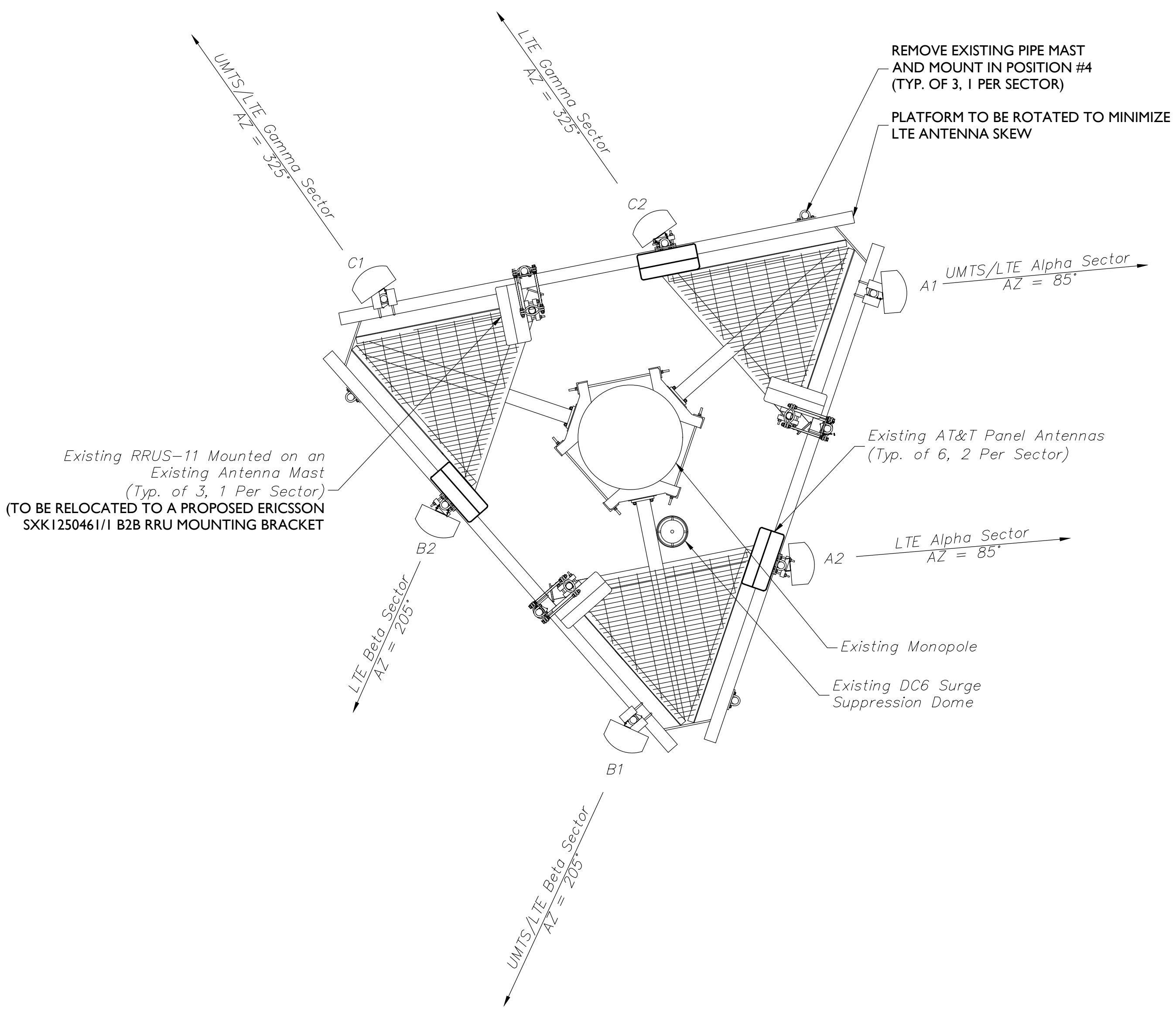
ELEVATION VIEW, DETAILS AND ANTENNA SCHEDULE

SHEET NUMBER :

A-2

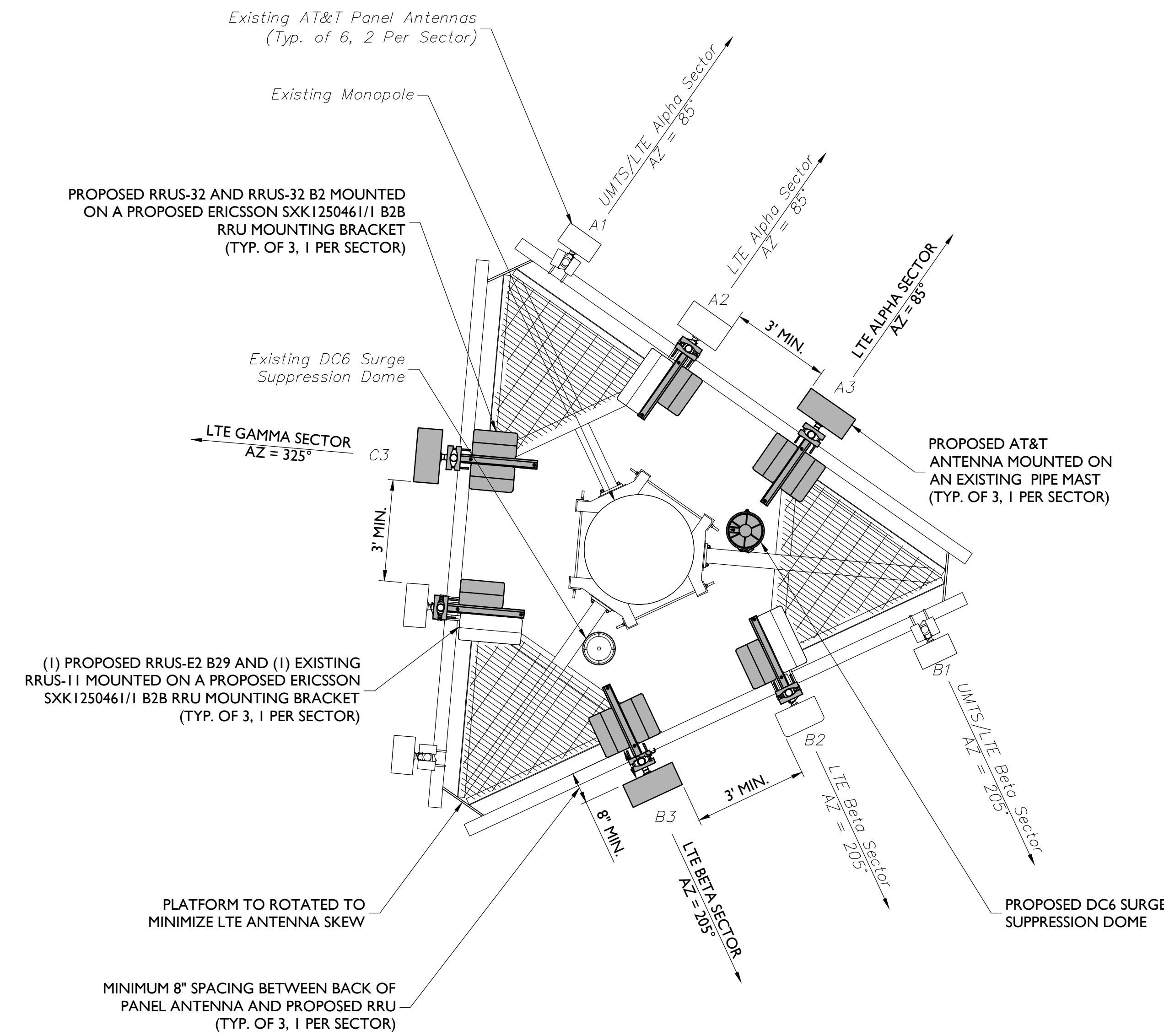


3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS
6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE



EXISTING ANTENNA LAYOUT

NOT TO SCALE



PROPOSED ANTENNA LAYOUT

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PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL
ENGINEER - LICENSE NUMBER: PEN.32577

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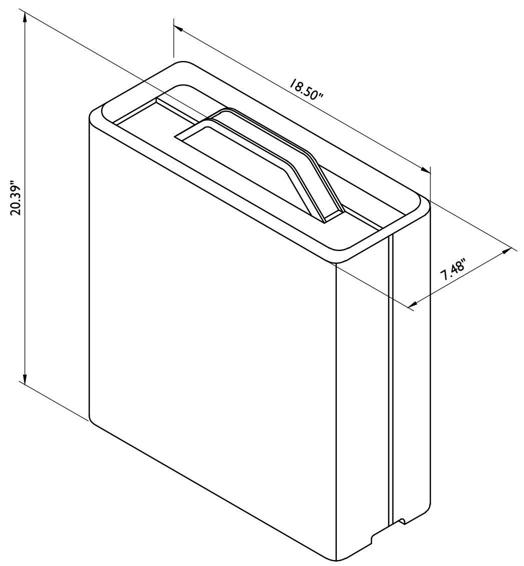
SHEET TITLE :
ANTENNA LAYOUTS

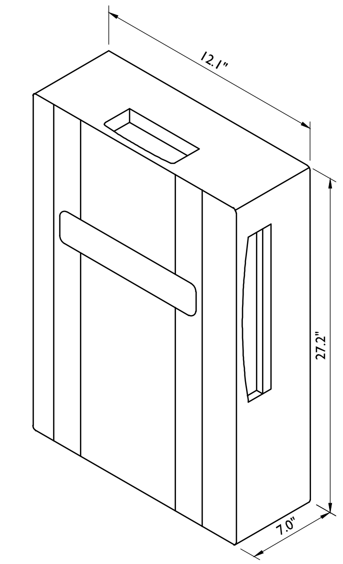
SHEET NUMBER :
A-3



RRUS-32 B66 DIMENSIONS (H X W X D): 20.39" X 18.5" X 7.48"
(INCLUDES HANDLES)

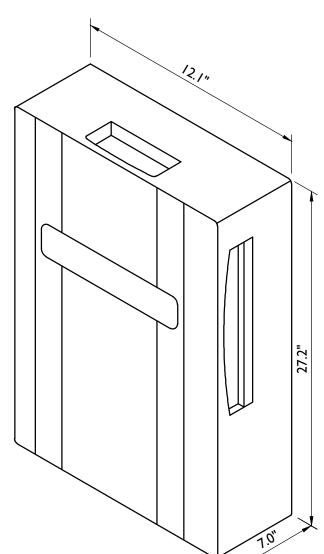
WEIGHT: 53 LBS

RRUS E2 DETAIL
NOT TO SCALE



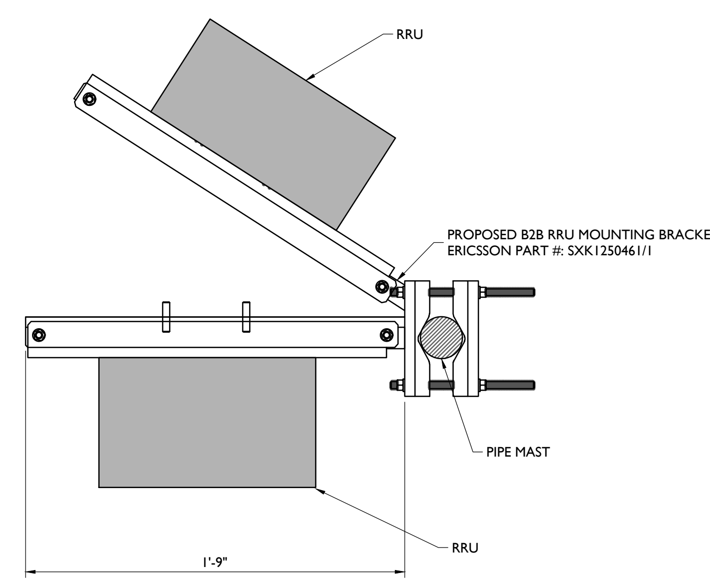
RRUS-32 DIMENSIONS (H X W X D): 27.2" X 12.1" X 7.0" (INCLUDES SUNSHIELD)
WEIGHT: 53 LBS

RRUS-32 DETAIL
NOT TO SCALE



RRUS–32 B2 DIMENSIONS (H X W X D): 27.2" X 12.1" X 7.0" (INCLUDES SUNSHIELD)
WEIGHT: 53 LBS

RRUS-32 B2 DETAIL
NOT TO SCALE



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PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL
ENGINEER - LICENSE NUMBER: PEN.32577

STATE OF CONNECTICUT
PETROS TSOUKALAS
32577
LICENSED PROFESSIONAL ENGINEER

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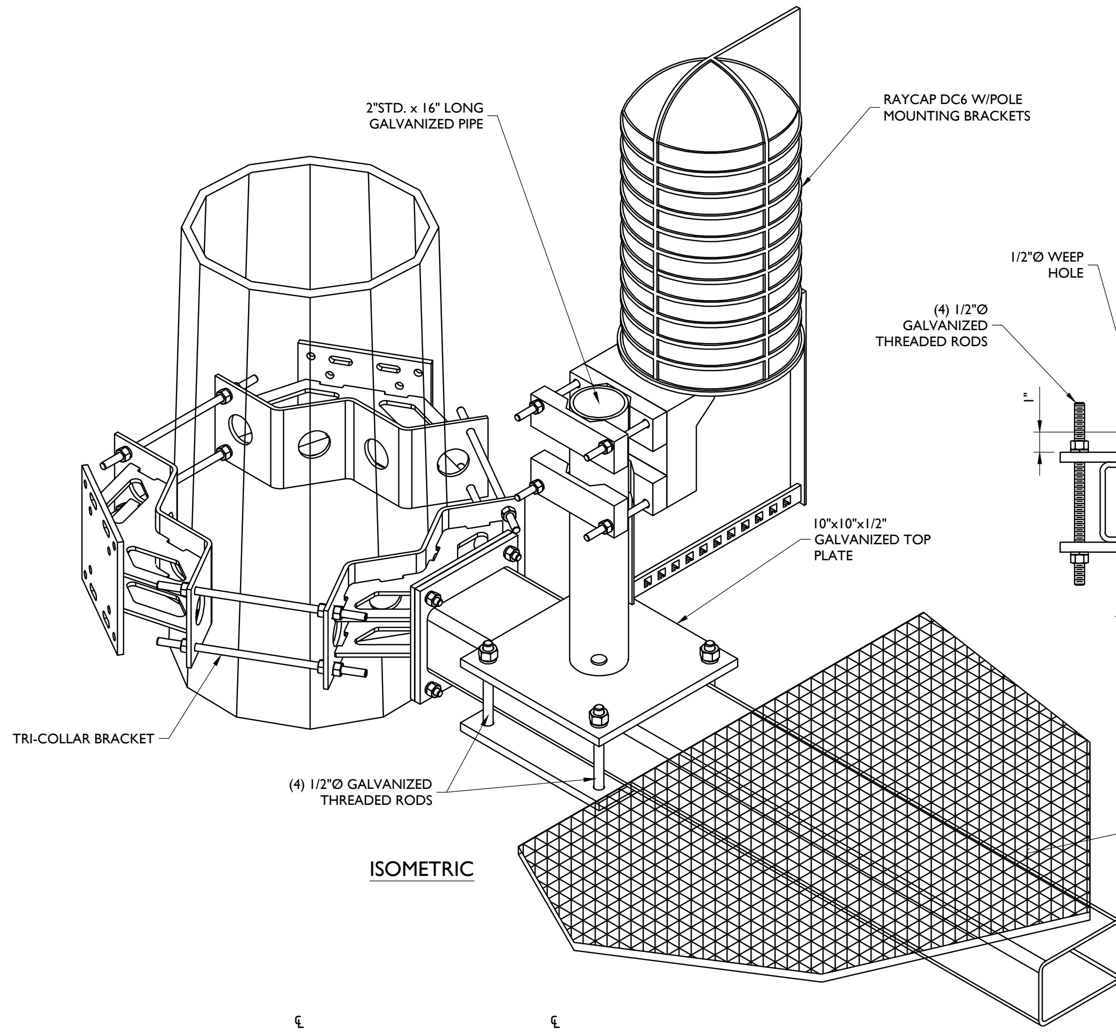
SHEET TITLE :
ANTENNA LAYOUTS

SHEET NUMBER :
A-4



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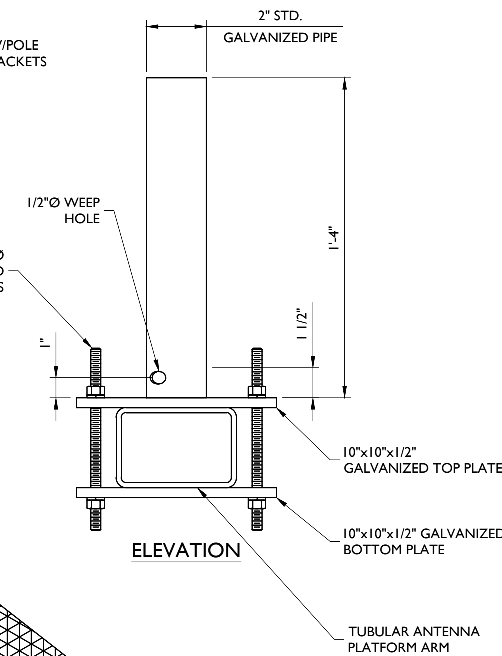
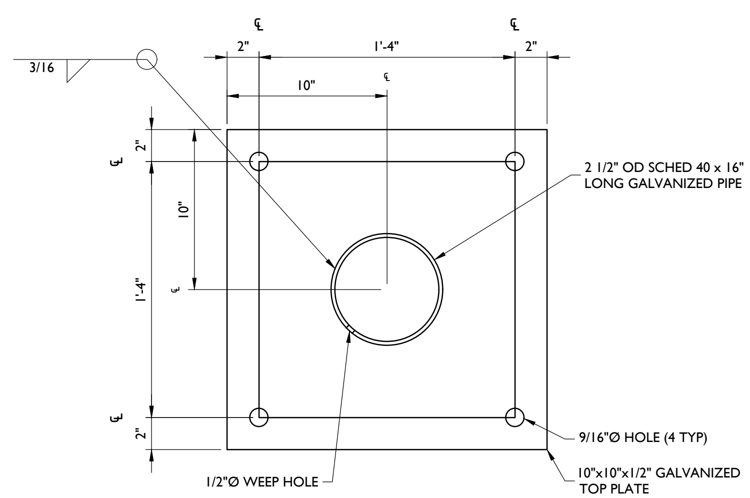
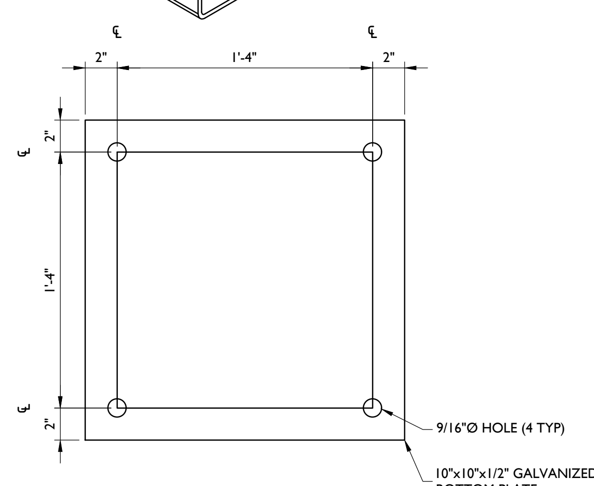


ELEVATION



PLAN
TOP PLATE



PLAN
BOTTOM
PLATE

DC6 SURGE SUPPRESSION DOME MOUNTING DETAIL

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PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.32577

STATE OF CONNECTICUT PETROS TSOUKALAS 32577 LICENSED PROFESSIONAL ENGINEER

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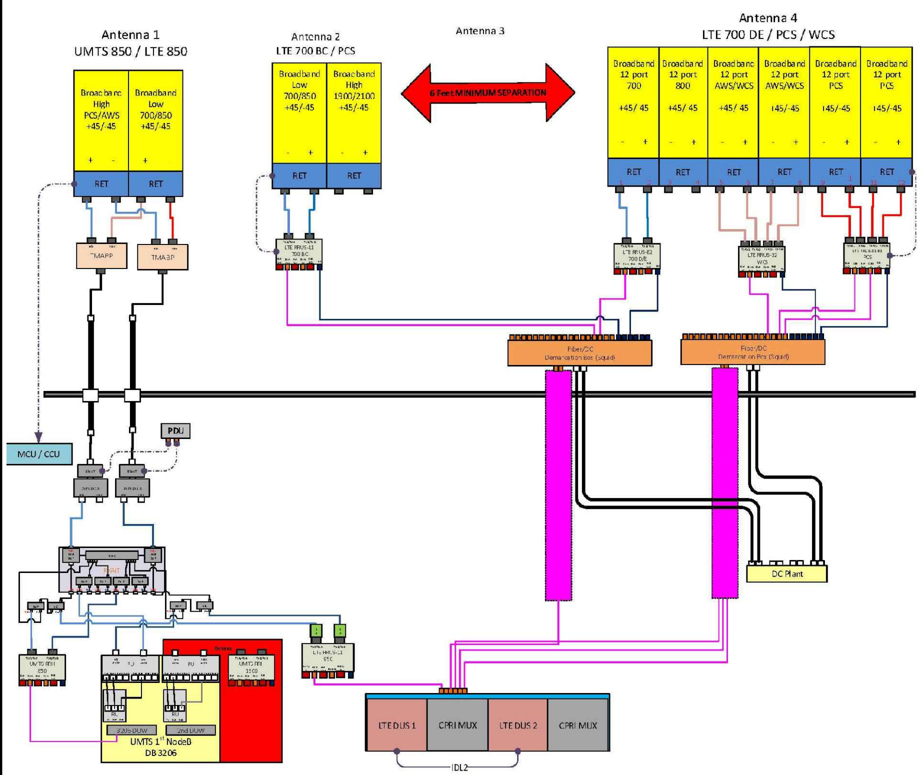
SHEET TITLE :
ANTENNA LAYOUTS

SHEET NUMBER :
A-5

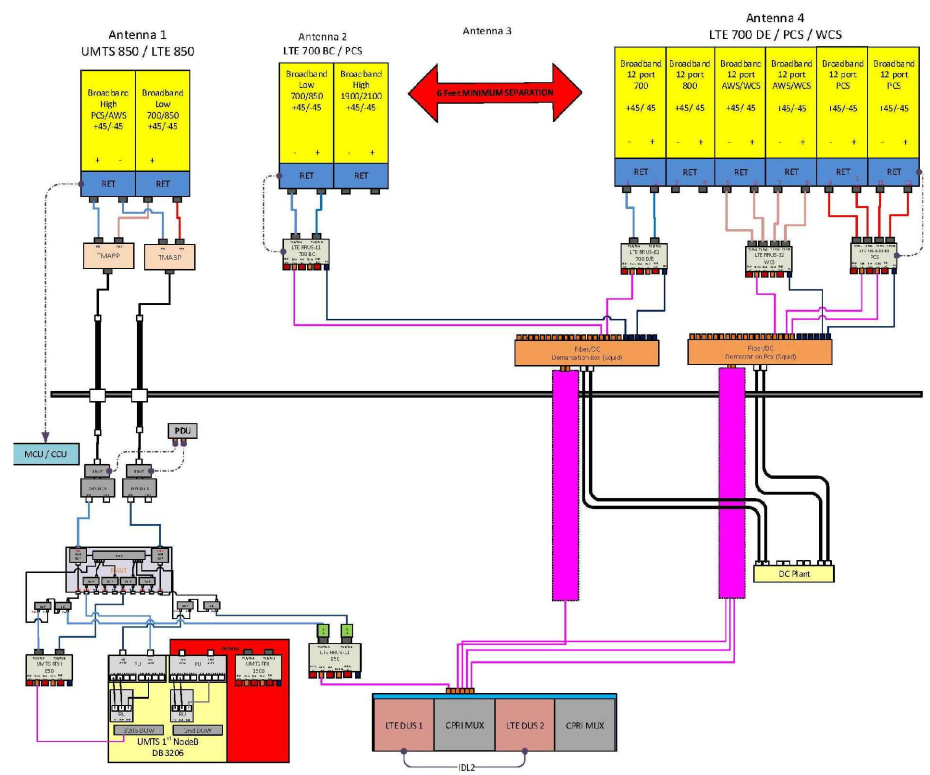
Diagram - Sector A Diagram File Name - CT5833_A_B_C_5C_700DE_Descope_Rev3_07072017.vsd
Atoll Site Name - CTV5833 Location Name - BRISTOL CENTER Market - CONNECTICUT Market Cluster - NEW ENGLAND
Comments: Removed RET Control cable attached to 700 D/E RRUS-E2 in Plumbing Diagram. Removed second LTE RBS. Removed decommissioned RRUs from PD.

Diagram - Sector B Diagram File Name - CT5833_A_B_C_5C_700DE_Descope_Rev3_07072017.vsd
Atoll Site Name - CTV5833 Location Name - BRISTOL CENTER Market - CONNECTICUT Market Cluster - NEW ENGLAND
Comments: Removed RET Control cable attached to 700 D/E RRUS-E2 in Plumbing Diagram. Removed second LTE RBS. Removed decommissioned RRUs from PD.

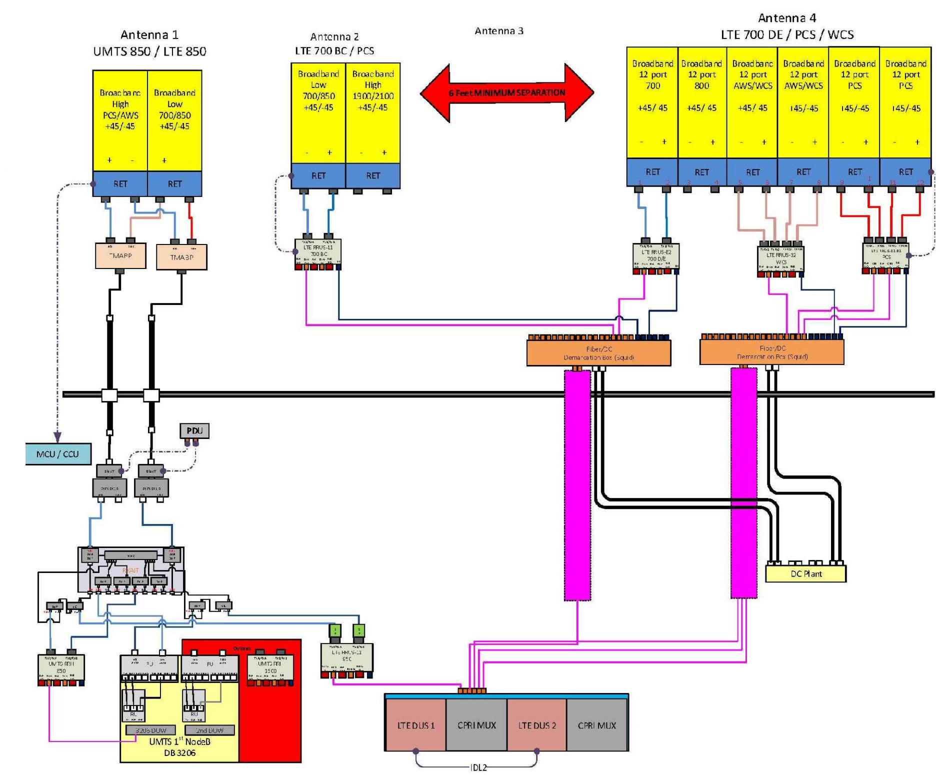
Diagram - Sector C Diagram File Name - CT5833_A_B_C_5C_700DE_Descope_Rev3_07072017.vsd
Atoll Site Name - CTV5833 Location Name - BRISTOL CENTER Market - CONNECTICUT Market Cluster - NEW ENGLAND
Comments: Removed RET Control cable attached to 700 D/E RRUS-E2 in Plumbing Diagram. Removed second LTE RBS. Removed decommissioned RRUs from PD.



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

BASED ON RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTV5833_2018-LTE-Next-Carrier_LTE-5C_dr701e_2051A0AD0S_10070954_27074_04-20-2017_Final-Approved_v3.00", LAST UPDATED 11/08/2017.

RF PLUMBING DIAGRAMS

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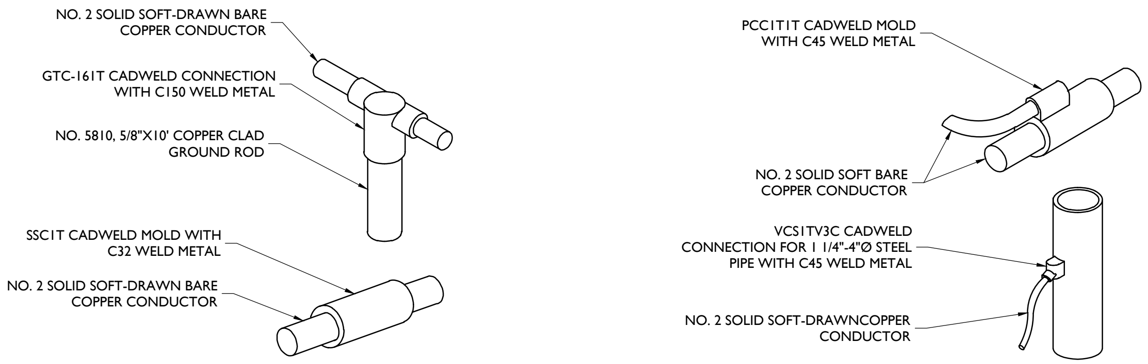
SHEET TITLE :
RF PLUMBING DIAGRAMS

SHEET NUMBER :
A-6



CADWELD DETAILS

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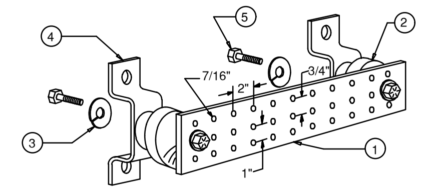


LEGEND

1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.

2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4

3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8

4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5056

5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

6- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

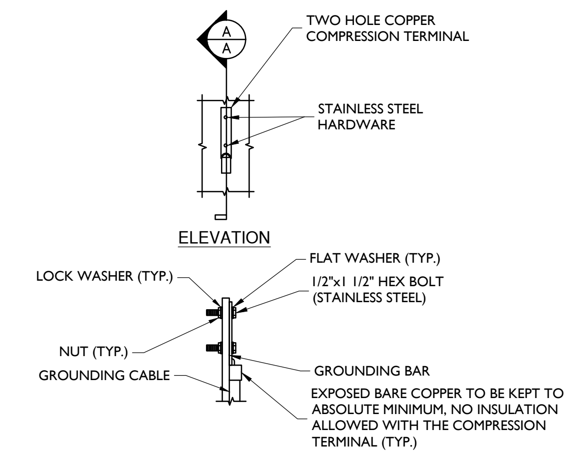
CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
-48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

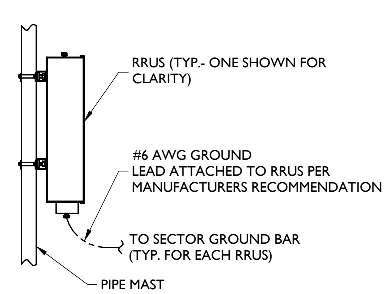
MASTER GROUND BAR

NOT TO SCALE



TYPICAL GROUND BAR CONNECTION DETAIL

NOT TO SCALE



RRU GROUNDING

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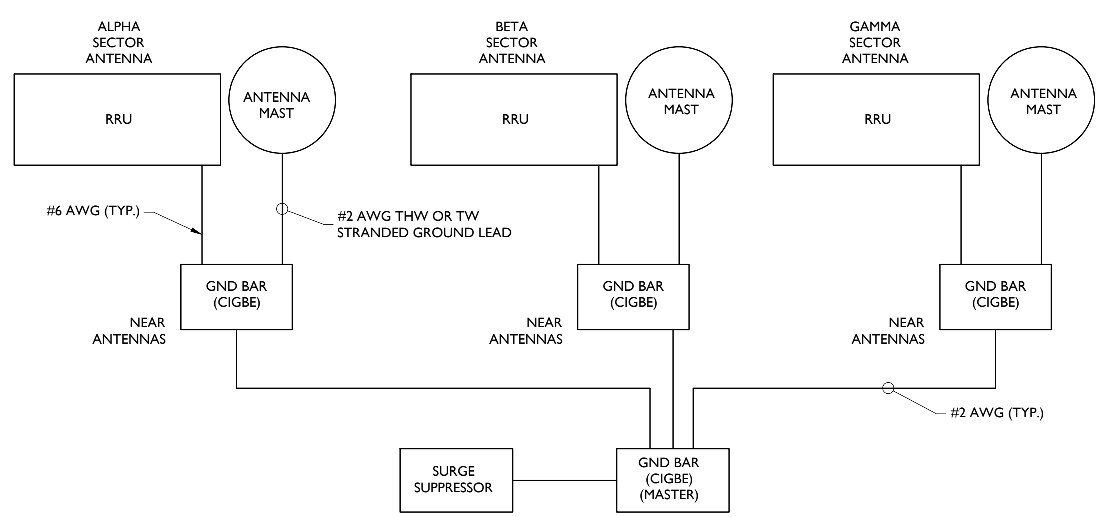
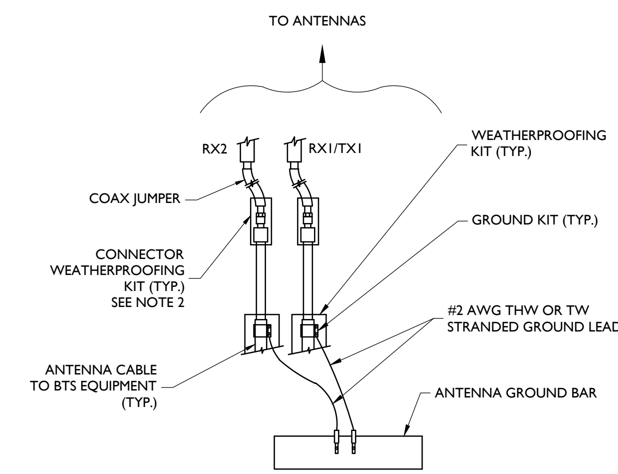


SCHEMATIC DIAGRAM GROUNDING SYSTEM



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR

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3	06/22/18	FOR CONSTRUCTION	AJC	RA
2	04/16/18	REVISED PER RF COMMENTS	AJC	RA
1	01/03/18	FOR CONSTRUCTION	AJC	PET
0	12/08/17	ISSUED FOR REVIEW	MSG	PET

PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.32577

STATE OF CONNECTICUT · PETROS TSOUKALAS · 32577 · LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

BRISTOL CENTER
FA# 10070954
SITE # CTL05833

371 TERRYVILLE AVENUE
BRISTOL, CT 06010
HARTFORD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE :
GROUNDING DETAILS

SHEET NUMBER :
G-1